

AIR CONDITIONING SYSTEMS

CITY MULTI



DATA BOOK

MODEL

OUTDOOR UNIT

PUMY-SM112-140VKM (-BS)

PUMY-SM112-140YKM (-BS)



INDOOR UNIT

PLFY-MS20-125VEM-E

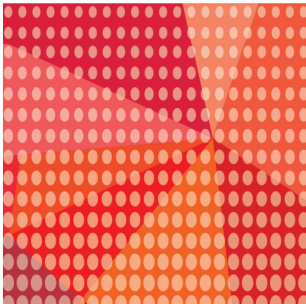
PLFY-MS15-50VFM-E



PEFY-MS20-140VMA(L)-A

PCFY-MS40-125VKM-E

PKFY-MS10-50VLM-E



PKFY-MS63-100VKM-E

CITY MULTI DATA BOOK

1. OUTDOOR UNITS

GENERAL LINE-UP

S-Series

PUMY-SM-VKM, PUMY-SM-YKM	1 - 1
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2. INDOOR UNITS

GENERAL LINE-UP

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CITY MULTI

1. OUTDOOR UNITS

GENERAL LINE-UP

S-Series

PUMY-SM-VKM, PUMY-SM-YKM.....	1 - 1
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Line-up of Outdoor Units of R32 CITY MULTI

Heat Pump S Series



- | | |
|---------------------|---------------------|
| PUMY-SM112VKM (-BS) | PUMY-SM112YKM (-BS) |
| PUMY-SM125VKM (-BS) | PUMY-SM125YKM (-BS) |
| PUMY-SM140VKM (-BS) | PUMY-SM140YKM (-BS) |

4.5, 5, 6HP

PUMY-SM-VKM, PUMY-SM-YKM

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1. SPECIFICATIONS

S-Series

PUMY-SM-VKM, YKM

Model				PUMY-SM112VKM(-BS) PUMY-SM112VKM-ET(-BS)			PUMY-SM125VKM(-BS) PUMY-SM125VKM-ET(-BS)			PUMY-SM140VKM(-BS) PUMY-SM140VKM-ET(-BS)			
Power source				1-phase 220-230-240 V, 50 Hz; 1-phase 220 V, 60 Hz									
Cooling capacity (Nominal) ^{*1}		kW	12.5			14.0			15.5				
		kcal/h	10,750			12,040			13,330				
		Btu/h	42,650			47,768			52,886				
		Power input	kW	3.32			4.19			4.81			
		Current input	A	15.40	14.73	14.12	19.43	18.59	17.81	22.45	21.47	20.58	
Temp. range of cooling		COP	3.76			3.34			3.22				
		Indoor	W.B.			15 to 24°C ^{*7}							
		Outdoor	D.B.			-5 to 52°C ^{*3}							
		Heating capacity (Nominal) ^{*2}		kW	14.0			16.0			17.5		
kcal/h	12,040			13,760			15,050						
Btu/h	47,768			54,592			59,712						
Power input	kW			3.33			3.73			4.15			
Current input	A			15.45	14.77	14.16	17.30	16.55	15.86	19.25	18.41	17.64	
Temp. range of heating		COP	4.20			4.28			4.21				
		Indoor	D.B.			17 to 28°C ^{*8}							
		Outdoor	W.B.			-20 to 15°C							
		Indoor unit connectable		Total capacity		50 to 130% of outdoor unit capacity							
Model/ Quantity				CITY MULTI		M/MS10 - M/MS140/12							
				Branch box ^{*4}		M/S/P15 - M/S/P100/8							
Mixed system	4-Branch box			CITY MULTI	M/MS10-M/MS140/5								
	1 unit			Branch box	M/S/P15-M/S/P100/4								
	6-Branch box			CITY MULTI	M/MS10-M/MS140/3								
	1 unit			Branch box	M/S/P15-M/S/P100/6								
	4-Branch box			CITY MULTI	M/MS10-M/MS140/3								
	2 unit			Branch box	M/S/P15-M/S/P100/8								
4-Branch box	CITY MULTI			M/MS10-M/MS140/2									
1 unit +	Branch box	M/S/P15-M/S/P100/8											
6-Branch box													
Sound pressure level (SPL) (measured in anechoic room)		dB	Cooling	52			53			54			
			Heating	54			56			56			
Sound power level (PWL) (measured in anechoic room)		dB	Cooling	72			73			74			
			Heating	74			76			76			
Refrigerant piping diameter		Liquid pipe	mm (in)		9.52 (3/8)								
		Gas pipe	mm (in)		15.88 (5/8)								
Fan		Type × Quantity		Propeller Fan x 1									
		Airflow rate	m ³ /min	77			83			83			
			L/s	1,283			1,383			1,383			
			cfm	2,719			2,931			2,931			
		Control, Driving mechanism		DC control									
		Motor output	kW	0.20 × 1									
Compressor		External static press.		0 Pa/30 Pa ^{*5}									
		Type × Quantity		Twin rotary hermetic compressor x 1									
		Manufacturer		Mitsubishi Electric Corporation									
		Starting method		Inverter									
		Capacity control	%	Cooling	26 to 100			24 to 100			21 to 100		
				Heating	20 to 100			18 to 100			17 to 100		
		Motor output	kW	3.1			3.5			3.7			
Case heater	kW	0											
Lubricant		FW68CA (1.4 liter)											
External finish				Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1									
External dimension H × W × D		mm		981 × 1,050 × 330 (+40)									
		in		38-5/8 × 41-3/8 × 13 (+1-37/64)									
Protection devices		High pressure protection		High pressure switch									
		Inverter circuit (COMP/FAN)		Overcurrent detection, Overheat detection (Heat sink thermistor)									
		Compressor		Compressor thermistor, Overcurrent detection									
		Fan motor		Overheating, Voltage protection,									
Refrigerant		Type × original charge		R32 3.0 kg									
		Control		Linear expansion valve									
Net weight		kg (lb)		95 (209) ^{*6}									
Heat exchanger				Cross Fin and Copper tube									
HIC circuit (HIC: Heat Inter-Changer)				HIC circuit									
Defrosting method				Reversed refrigerant circuit									
Standard attachment		Document		Installation Manual									
		Accessory		Grounded lead wire, Muffler, Joint pipe-L									
Optional parts				Joint: CMY-Y62-G-E, Header: CMY-Y64/68-G-E Branch Box: PAC-MMK40/60BC, Sensor and alarm kit: PAC-SK60SA-E									

Remarks

- Nominal cooling conditions:
Indoor: 27°C D.B./19°C W.B. [81°F D.B./66°F W.B.]
Outdoor: 35°C D.B. [95°F D.B.]
Pipe length: 7.5 m [24-9/16 ft]
Level difference: 0 m [0 ft]
- Nominal heating conditions:
Indoor: 20°C D.B. [68°F D.B.]
Outdoor: 7°C D.B./6°C W.B. [45°F D.B./43°F W.B.]
Pipe length: 7.5 m [24-9/16 ft]
Level difference: 0 m [0 ft]
- 15 to 52°C D.B. [50 to 126°F D.B.] when using an optional air protect guide [PAC-SH95AG-E]
10 to 52°C D.B. when the following indoor units are connected with branch box: M/S/P series type indoor unit.
15 to 52°C D.B. when the following indoor units are connected PKFY*VLM or PKFY*VKM
- At least two indoor units must be connected when using branch box.
- It is possible to set the external static pressure to 30 Pa by Dip Switch.
- 96 (211), for PUMY-SM112/125/140VKM.TH-BS.
- 15 to 23°C W.B. [59 to 73°F W.B.] when using branch box (M/S/P series)
- 20 to 27°C D.B. [68 to 81°F W.B.] when using branch box (M/S/P series)

Notes:

- Nominal conditions *1, *2 are subject to ISO 15042.
- Due to continuing improvement, above specifications are subject to change without notice.
- See the following for unit conversion: kcal/h = kW × 860, Btu/h = kW × 3,412, cfm = m³/min × 35.31, lb = kg × 0.4536
- Above specification data is subject to rounding variation.

Model			PUMY-SM112YKM(-BS) PUMY-SM112YKM-ET(-BS)			PUMY-SM125YKM(-BS) PUMY-SM125YKM-ET(-BS)			PUMY-SM140YKM(-BS) PUMY-SM140YKM-ET(-BS)			
Power source			3-phase 380-400-415 V, 50 Hz; 3-phase 380 V, 60 Hz									
Cooling capacity (Nominal) ¹		kW	12.5			14.0			15.5			
		kcal/h	10,750			12,040			13,330			
		Btu/h	42,650			47,768			52,886			
		Power input	kW	3.32			4.19			4.81		
		Current input	A	5.31	5.04	4.86	6.70	6.37	6.14	7.74	7.35	7.09
COP		kW/kW	3.76			3.34			3.22			
		Indoor	W.B.	15 to 24°C ⁷								
		Outdoor	D.B.	-5 to 52°C ³								
Heating capacity (Nominal) ²		kW	14.0			16.0			17.5			
		kcal/h	12,040			13,760			15,050			
		Btu/h	47,768			54,592			59,712			
		Power input	kW	3.33			3.73			4.15		
		Current input	A	5.33	5.06	4.88	5.97	5.67	5.46	6.64	6.31	6.08
COP		kW/kW	4.20			4.28			4.21			
		Indoor	D.B.	17 to 28°C ⁸								
Temp. range of heating		Outdoor	W.B.	-20 to 15°C								
		Total capacity		50 to 130% of outdoor unit capacity								
Indoor unit connectable		Model/ Quantity	CITY MULTI		M/MS10 - M/MS140/12							
			Branch box ⁴		M/S/P15 - M/S/P100/8							
			Mixed system	4-Branch box 1 unit	CITY MULTI	M/MS10-M/MS140/5						
					Branch box	M/S/P15-M/S/P100/4						
				6-Branch box 1 unit	CITY MULTI	M/MS10-M/MS140/3						
					Branch box	M/S/P15-M/S/P100/6						
				4-Branch box 2 unit	CITY MULTI	M/MS10-M/MS140/3						
					Branch box	M/S/P15-M/S/P100/8						
4-Branch box 1 unit + 6-Branch box 1 unit	CITY MULTI	M/MS10-M/MS140/2										
	Branch box											
				M/S/P15-M/S/P100/8								
Sound pressure level (SPL) (measured in anechoic room)		dB	Cooling	52			53			54		
			Heating	54			56			56		
Sound power level (PWL) (measured in anechoic room)		dB	Cooling	72			73			74		
			Heating	74			76			76		
Refrigerant piping diameter		Liquid pipe	mm (in)	9.52 (3/8)								
		Gas pipe	mm (in)	15.88 (5/8)								
Fan		Type × Quantity		Propeller Fan x 1								
		Airflow rate	m ³ /min	77			83			83		
			L/s	1,283			1,383			1,383		
			cfm	2,719			2,931			2,931		
		Control, Driving mechanism		DC control								
		Motor output	kW	0.20 × 1								
External static press.		0 Pa/30 Pa ⁵										
Compressor		Type × Quantity		Twin rotary hermetic compressor x 1								
		Manufacturer		Mitsubishi Electric Corporation								
		Starting method		Inverter								
		Capacity control	%	Cooling	26 to 100			24 to 100			21 to 100	
				Heating	20 to 100			18 to 100			17 to 100	
		Motor output	kW	3.1			3.5			3.7		
		Case heater	kW	0								
		Lubricant		FW68CA (1.4 liter)								
External finish		Galvanized Steel Sheet Munsell No. 3Y 7.8/1.1										
External dimension H × W × D		mm	981 × 1,050 × 330 (+40)									
		in	38-5/8 × 41-3/8 × 13 (+1-37/64)									
Protection devices		High pressure protection		High pressure switch								
		Inverter circuit (COMP./FAN)		Overcurrent detection, Overheat detection (Heat sink thermistor)								
		Compressor		Compressor thermistor, Overcurrent detection								
		Fan motor		Overheating, Voltage protection,								
Refrigerant		Type × original charge		R32 3.0 kg								
		Control		Linear expansion valve								
Net weight		kg (lb)		97 (213) ⁶								
Heat exchanger		Cross Fin and Copper tube										
HIC circuit (HIC: Heat Inter-Changer)		HIC circuit										
Defrosting method		Reversed refrigerant circuit										
Standard attachment		Document		Installation Manual								
		Accessory		Grounded lead wire, Muffler, Joint pipe-L								
Optional parts		Joint: CMY-Y62-G-E, Header: CMY-Y64/68-G-E Branch Box: PAC-MMK40/60BC, Sensor and alarm kit: PAC-SK60SA-E										

Remarks

- *1. Nominal cooling conditions:
 Indoor: 27°C D.B./19°C W.B. [81°F D.B./66°F W.B.]
 Outdoor: 35°C D.B. [95°F D.B.]
 Pipe length: 7.5 m [24-9/16 ft]
 Level difference: 0 m [0 ft]
- *2. Nominal heating conditions:
 Indoor: 20°C D.B. [68°F D.B.]
 Outdoor: 7°C D.B./6°C W.B. [45°F D.B./43°F W.B.]
 Pipe length: 7.5 m [24-9/16 ft]
 Level difference: 0 m [0 ft]
- *3. -15 to 52°C D.B. [50 to 126°F D.B.], when using an optional air protect guide [PAC-SH95AG-E]
 10 to 52°C D.B. when the following indoor units are connected with branch box: M/S/P series type indoor unit.
 15 to 52°C D.B. when the following indoor units are connected PKFY*VLM or PKFY*VKM
- *4. At least two indoor units must be connected when using branch box.
- *5. It is possible to set the external static pressure to 30 Pa by Dip Switch.
- *6. 98 (216), for PUMY-SM112/125/140YKM.TH-BS.
- *7. 15 to 23°C W.B. [59 to 73°F W.B.] when using branch box (M/S/P series)
- *8. 20 to 27°C D.B. [68 to 81°F W.B.] when using branch box (M/S/P series)

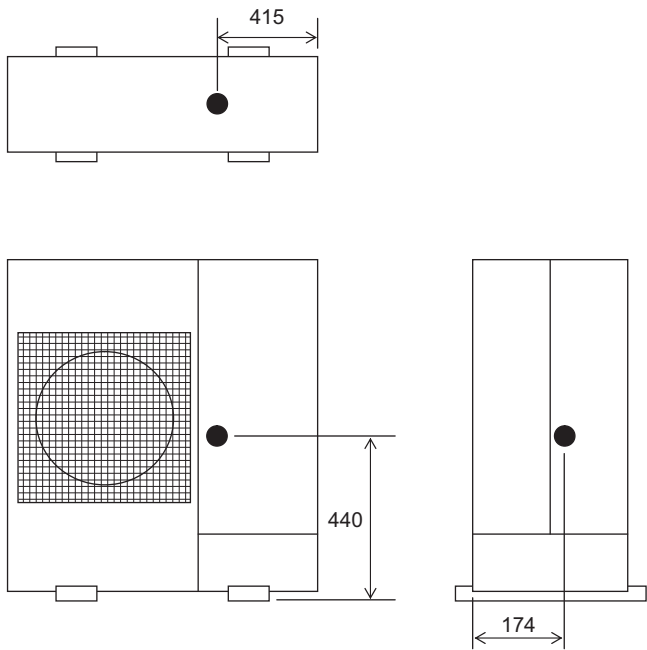
Notes:

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 - Due to continuing improvement, above specifications are subject to change without notice.
 - See the following for unit conversion: kcal/h = kW × 860, Btu/h = kW × 3,412, cfm = m³/min × 35.31, lb = kg/0.4536
- Above specification data is subject to rounding variation.

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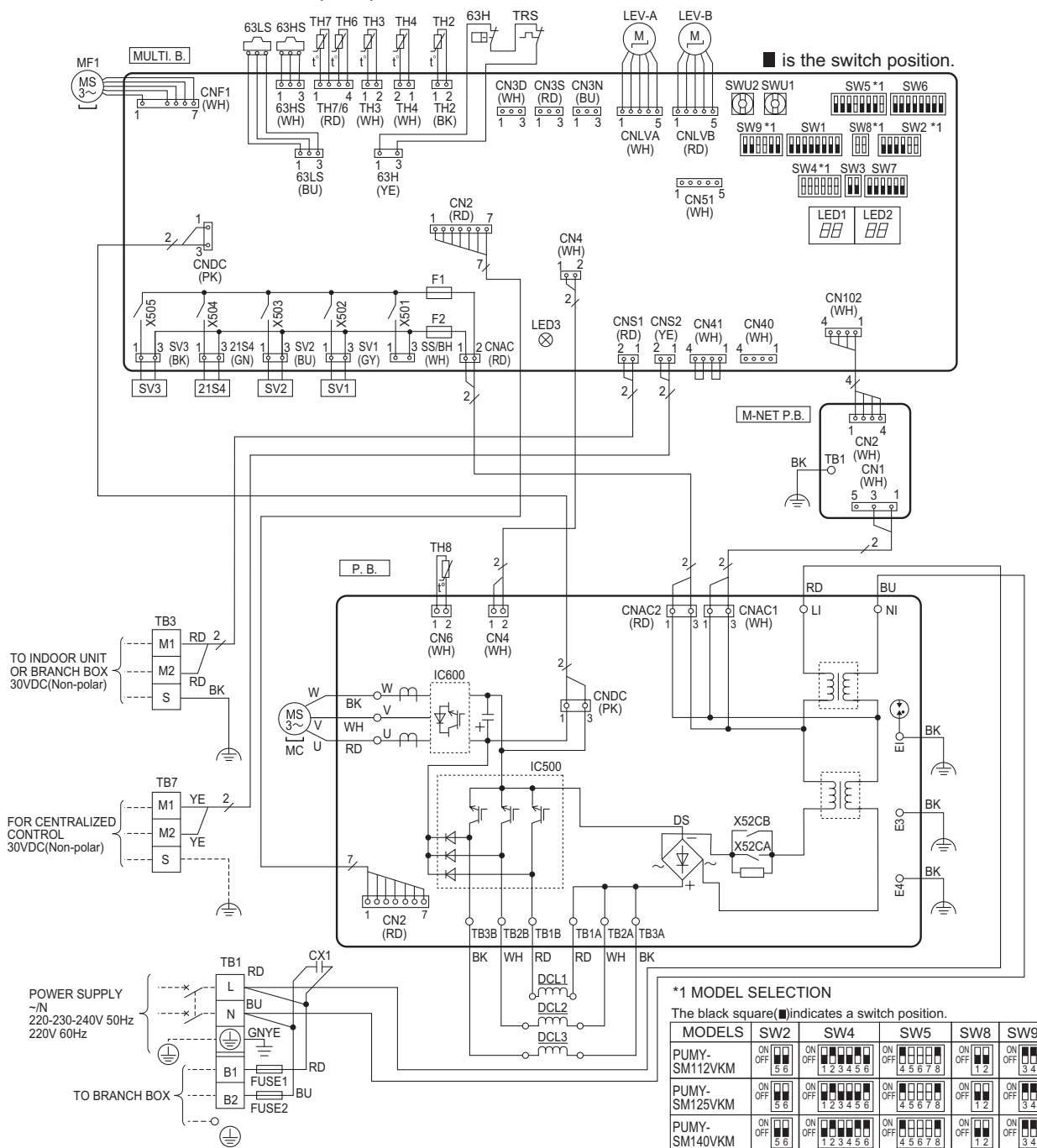
PUMY-SM112, 125, 140VKM (-BS)
PUMY-SM112, 125, 140YKM (-BS)

Unit: mm



PUMY-SM-VKM, YKM

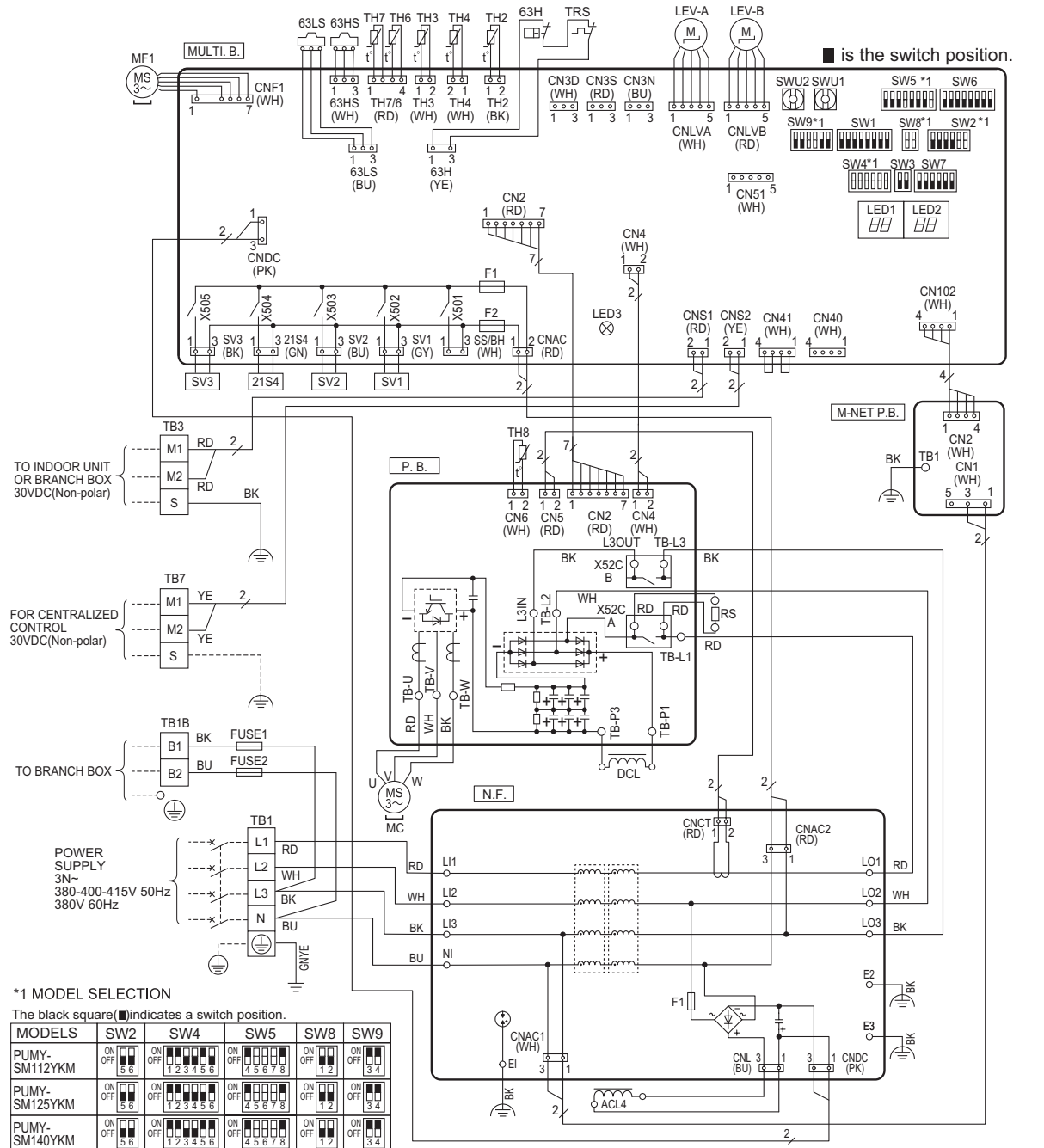
PUMY-SM112, 125, 140VKM (-BS)



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SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply/Branch Box>	TH7	Thermistor <Ambient>	SW5	Switch <Function Selection>
TB3	Terminal Block <Indoor/Outdoor, Branch Box/Outdoor Transmission Line>	TH8	Thermistor <Heat Sink>	SW6	Switch <Function Selection>
TB7	Terminal Block <Centralized Control Transmission Line>	LEV-A, LEV-B	Linear Expansion Valve	SW7	Switch <Function Selection>
FUSE1,FUSE2	Fuse <T20AL250V>	DCL1, DCL2, DCL3	Reactor	SW8	Switch <Model Selection>
MC	Motor for Compressor	CX1	Capacitor	SW9	Switch <Function/Model Selection>
MF1	Fan Motor	TRS	Thermal Protector	SWU1	Switch <Unit Address Selection, ones digit>
63H	High Pressure Switch	P.B.	Power Circuit Board	SWU2	Switch <Unit Address Selection, tens digit>
63HS	High Pressure Sensor	U/V/W	Connection Terminal <U/V/W-Phase>	SS/BH	Connector <Connection for Option>
63LS	Low Pressure Sensor	LI	Connection Terminal <L-Phase>	CN3D	Connector <Connection for Option>
SV1	Solenoid Valve Coil <Bypass Valve>	NI	Connection Terminal <N-Phase>	CN3S	Connector <Connection for Option>
SV2	Solenoid Valve Coil <Liquid Shut-off Valve>	TB1A, TB2A, TB3A, TB1B, TB2B, TB3B	Connection Terminal <Reactor>	CN3N	Connector <Connection for Option>
SV3	Solenoid Valve Coil <Gas Shut-off Valve>	EI, E3, E4	Connection Terminal <Electrical Parts Box>	CN51	Connector <Connection for Option>
21S4	Solenoid Valve Coil <4-Way Valve>	X52CA/B	52C Relay	LED1,LED2	LED <Operation Inspection Display>
TH2	Thermistor <HIC Pipe>	MULTI.B.	Multi Controller Circuit Board	LED3	LED <Power Supply to Main Microcomputer>
TH3	Thermistor <Outdoor Liquid Pipe>	SW1	Switch <Display Selection>	F1,F2	Fuse <T6.3AL250V>
TH4	Thermistor <Compressor>	SW2	Switch <Function Selection>	X501-505	Relay
TH6	Thermistor <Suction Pipe>	SW3	Switch <Test Run>	M-NET P.B.	M-NET Power Circuit Board
		SW4	Switch <Model Selection>	TB1	Connection Terminal <Electrical Parts Box>

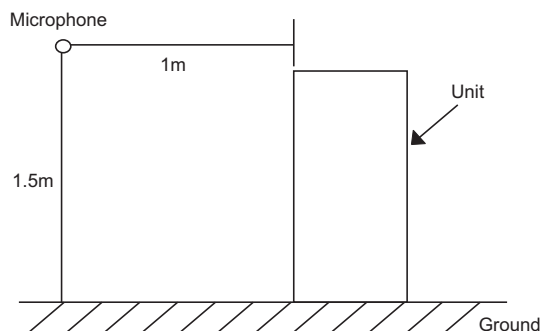
PUMY-SM112, 125, 140YKM (-BS)



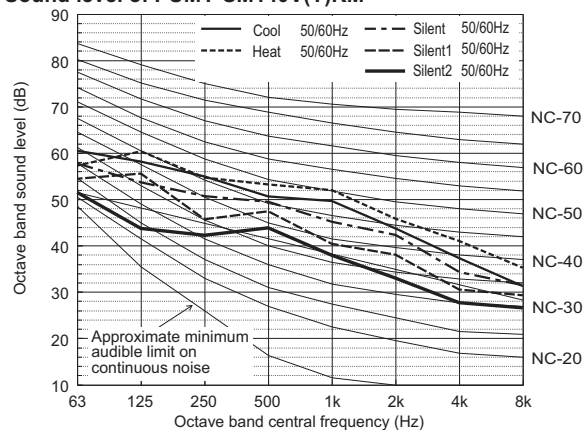
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SYMBOL	NAME	SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <Power Supply>	TH8	Thermistor <Heat Sink>	SW5	Switch <Function Selection>
TB1B	Terminal Block <Branch Box>	RS	Rush Current Protect Resistor	SW6	Switch <Function Selection>
TB3	Terminal Block <Indoor/Outdoor, Branch Box/Outdoor Transmission Line>	LEV-A, LEV-B	Linear Expansion Valve	SW7	Switch <Function Selection>
TB7	Terminal Block <Centralized Control Transmission Line>	ACL4	Reactor	SW8	Switch <Model Selection>
FUSE1, FUSE2	Fuse <T20AL250V>	DCL	Reactor	SW9	Switch <Function/Model Selection>
MC	Motor for Compressor	TRS	Thermal Protector	SWU1	Switch <Unit Address Selection, ones digit>
MF1	Fan Motor	P.B.	Power Circuit Board	SWU2	Switch <Unit Address Selection, tens digit>
63H	High Pressure Switch	TB-U/V/W	Connection Terminal <U/V/W-Phase>	SS/BH	Connector <Connection for Option>
63HS	High Pressure Sensor	TB-L1/L2/L3	Connection Terminal <L1/L2/L3-Power Supply>	CN3D	Connector <Connection for Option>
63LS	Low Pressure Sensor	TB-P1/P3	Connection Terminal	CN3S	Connector <Connection for Option>
SV1	Solenoid Valve Coil <Bypass Valve>	X52CA/B	52C Relay	CN3N	Connector <Connection for Option>
SV2	Solenoid Valve Coil <Liquid Shut-off Valve>	N.F.	Noise Filter Circuit Board	CN51	Connector <Connection for Option>
SV3	Solenoid Valve Coil <Gas Shut-off Valve>	L01/L02/L03	Connection Terminal <L1/L2/L3-Power Supply>	LED1, LED2	LED <Operation Inspection Display>
21S4	Solenoid Valve Coil <4-Way Valve>	L1/L2/L3/NI	Connection Terminal <L1/L2/L3-Power Supply>	LED3	LED <Power Supply to Main Microcomputer>
TH2	Thermistor <HIC Pipe>	E1, E2, E3	Connection Terminal <Electrical Parts Box>	F1, F2	Fuse <T6.3AL250V>
TH3	Thermistor <Outdoor Liquid Pipe>	F1	Fuse <T6.3AL250V>	X501~505	Relay
TH4	Thermistor <Compressor>	MULTI.B.	Multi Controller Circuit Board	M-NET P.B.	M-NET Power Circuit Board
TH6	Thermistor <Suction Pipe>	SW1	Switch <Display Selection>	TB1	Connection Terminal <Electrical Parts Box>
TH7	Thermistor <Ambient>	SW2	Switch <Function Selection>		
		SW3	Switch <Test Run>		
		SW4	Switch <Model Selection>		

Measurement condition
PUMY-SM112, 125, 140VKM (-BS)
PUMY-SM112, 125, 140YKM (-BS)



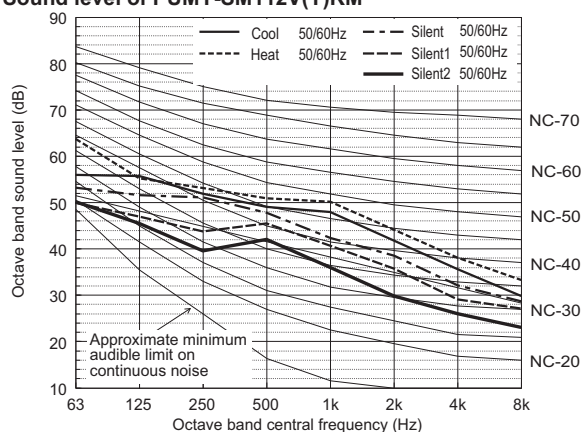
Sound level of PUMY-SM140V(Y)KM



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	60.6	58.2	55.0	50.7	49.7	43.8	37.4	31.3	54.0
Standard Heating	50/60Hz	57.3	60.4	54.7	53.3	52.0	45.9	41.1	35.3	56.0
Silent	50/60Hz	57.8	53.7	50.7	49.5	45.2	42.3	34.4	31.5	51.0
Super silent1	50/60Hz	54.5	55.6	45.7	47.5	40.4	38.1	30.6	29.4	48.0
Super silent2	50/60Hz	51.5	43.8	42.3	43.9	38.0	33.1	27.8	26.7	44.0

When Silent/Super Silent1/Super Silent2 mode is set, the A/C system's capacity is limited. The system could return to normal operation from Silent/Super Silent1/Super Silent2 mode automatically in the case that the operation condition is severe.

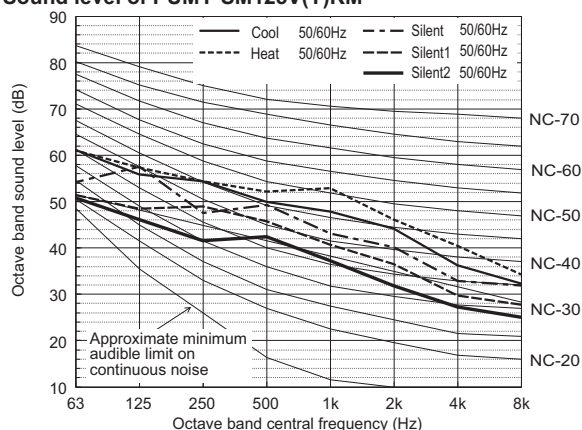
Sound level of PUMY-SM112V(Y)KM



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	56.0	55.7	51.9	49.1	48.0	41.8	35.6	29.9	52.0
Standard Heating	50/60Hz	63.8	55.2	53.1	50.9	50.2	44.2	38.1	33.3	54.0
Silent	50/60Hz	53.2	51.6	51.1	47.8	42.3	38.5	32.1	28.7	49.0
Super silent1	50/60Hz	49.9	47.0	43.8	45.5	40.7	35.8	29.1	27.1	46.0
Super silent2	50/60Hz	50.2	45.5	39.6	42.0	36.0	29.8	26.0	23.1	42.0

When Silent/Super Silent1/Super Silent2 mode is set, the A/C system's capacity is limited. The system could return to normal operation from Silent/Super Silent1/Super Silent2 mode automatically in the case that the operation condition is severe.

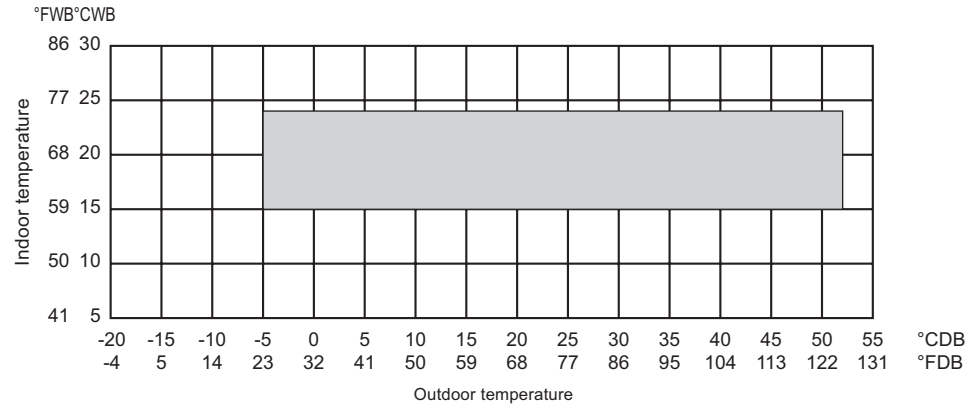
Sound level of PUMY-SM125V(Y)KM



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	61.1	55.8	54.4	49.9	47.9	44.1	36.2	32.3	53.0
Standard Heating	50/60Hz	61.0	57.3	54.4	52.1	52.9	46.1	40.5	34.3	56.0
Silent	50/60Hz	54.2	57.5	47.5	49.2	43.1	40.2	32.9	31.9	50.0
Super silent1	50/60Hz	51.4	48.4	48.9	45.7	40.7	36.5	29.7	27.8	47.0
Super silent2	50/60Hz	50.8	46.1	41.5	42.4	37.3	31.8	27.3	25.1	43.0

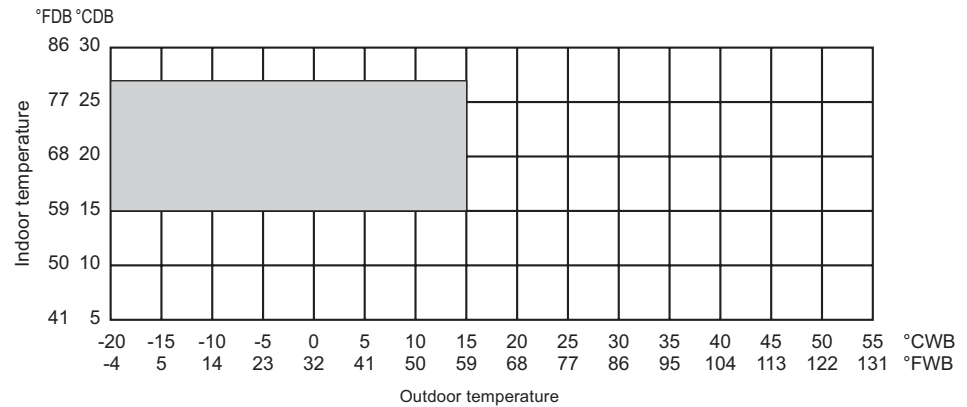
When Silent/Super Silent1/Super Silent2 mode is set, the A/C system's capacity is limited. The system could return to normal operation from Silent/Super Silent1/Super Silent2 mode automatically in the case that the operation condition is severe.

• Cooling



* 10 to 52°C D.B. [50 to 126°F D.B.]: in case of connecting PKFY-*VLM or PKFY-*VKM type indoor unit and M series, S series, and P series type indoor unit with branch box.
* 15 to 23°C W.B. [59 to 73°F W.B.] when using branch box (M/S/P series)

• Heating



* 20 to 27°C D.B. [68 to 81°F W.B.] when using branch box (M/S/P series)

7-1. Selection of Cooling/Heating Units

How to determine the capacity when less than or equal 100% indoor model size units are connected in total:

The purpose of this flow chart is to select the indoor and outdoor units. For other purposes, this flow chart is intended only for reference.

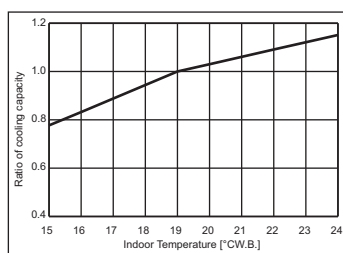
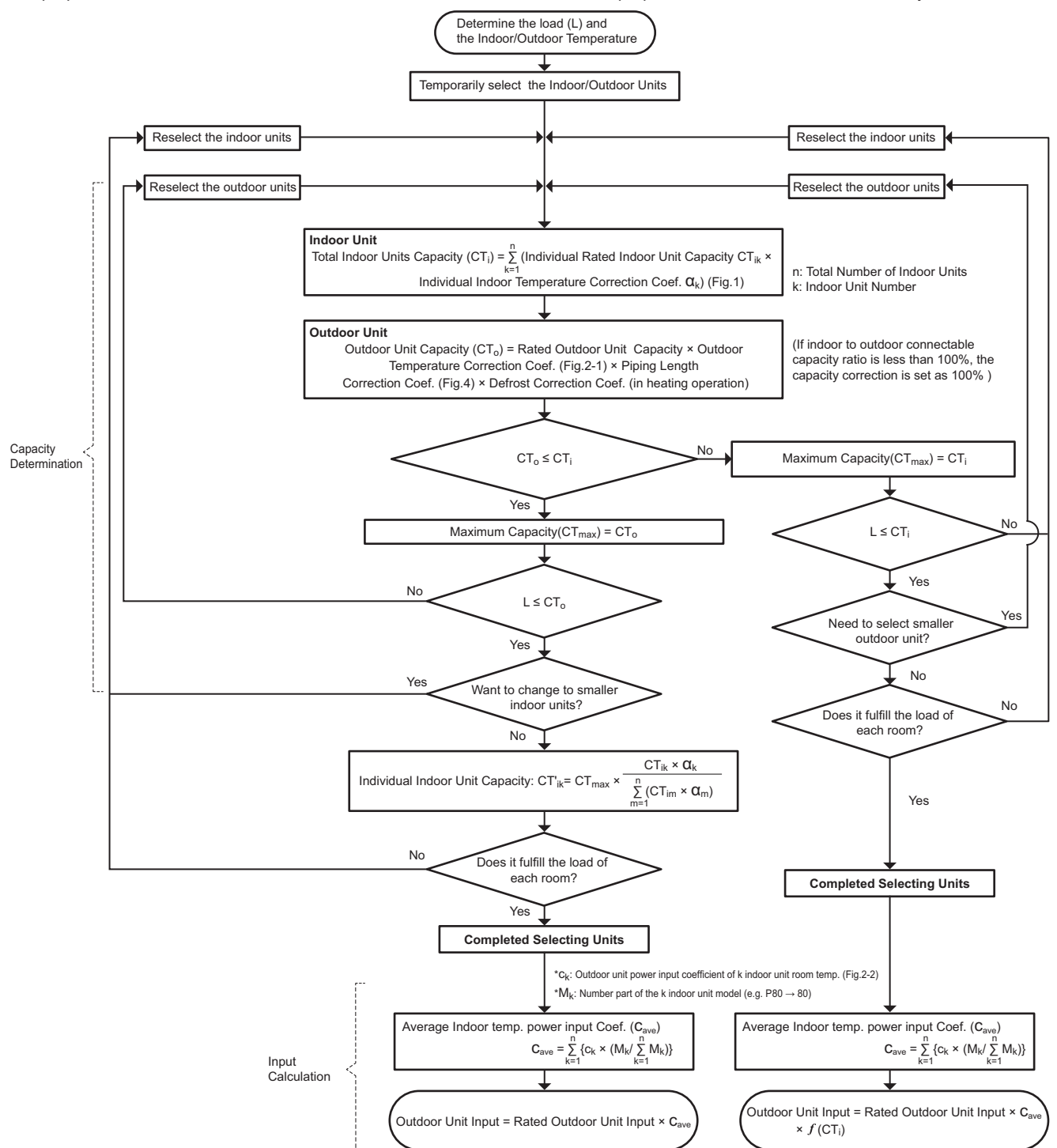


Fig.1 Indoor unit temperature correction *1

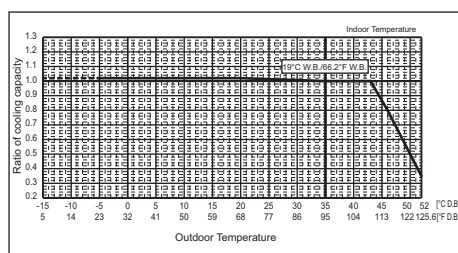


Fig.2-1 Outdoor unit temperature correction (capacity) *1

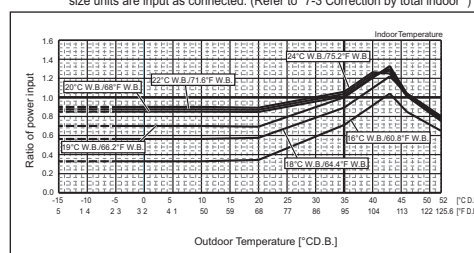


Fig.2-2 Outdoor unit temperature correction (power input) *1

* Values in the temperature correction diagram in the range below -5°C (23°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

*1 This figure shows the characteristic of PUMY-SM112/125/140VKM(-BS) and PUMY-SM112/125/140YKM(-BS).

How to determine the capacity when greater than 100% indoor model size units are connected in total:

The purpose of this flow chart is to select the indoor and outdoor units. For other purposes, this flow chart is intended only for reference.

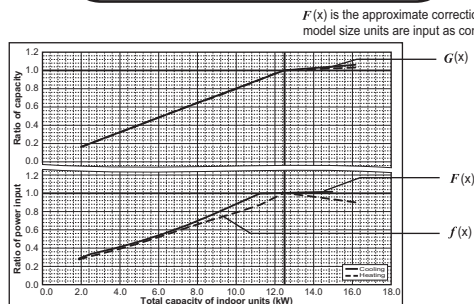
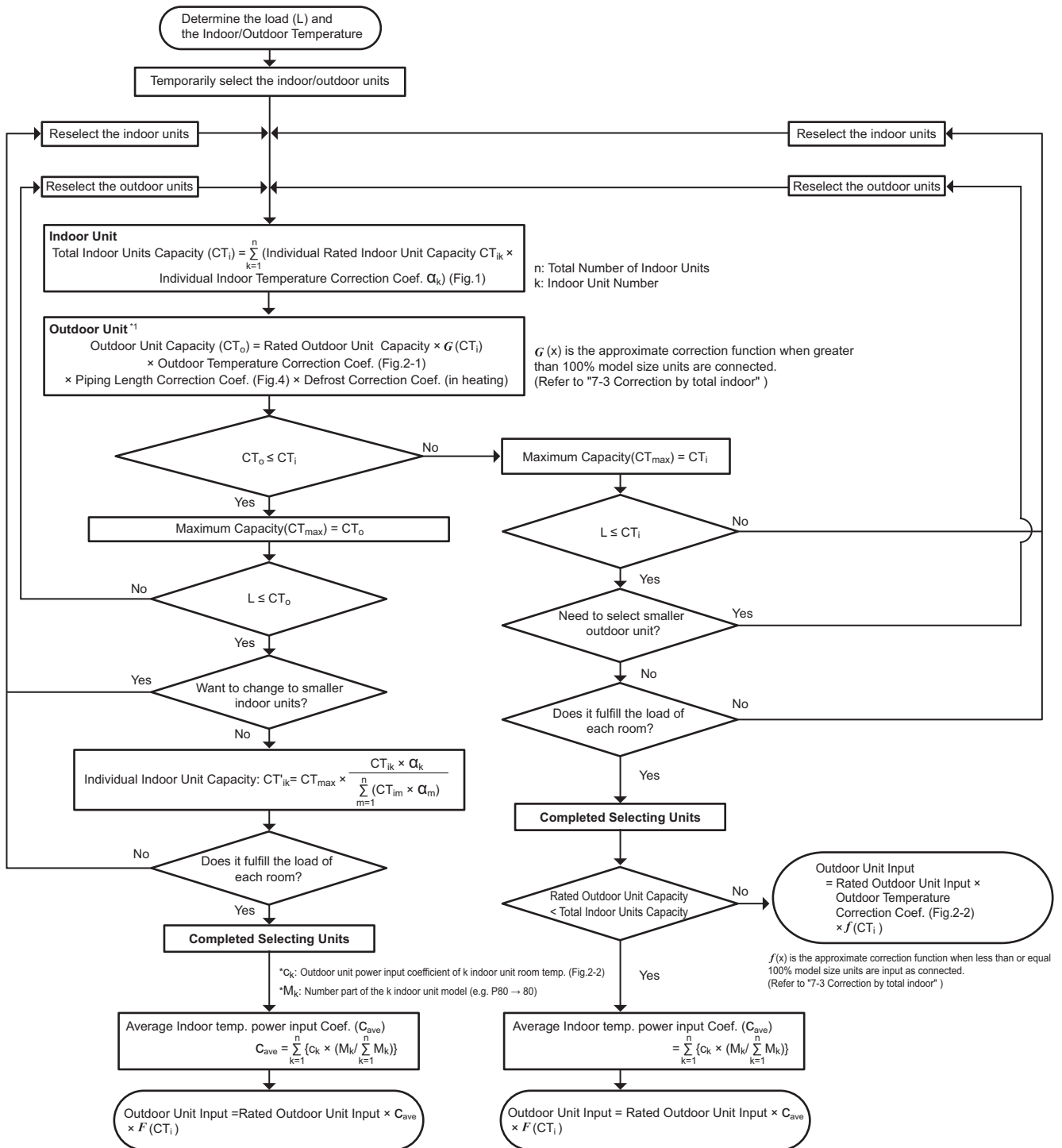


Fig.3 Correction by total indoor *1

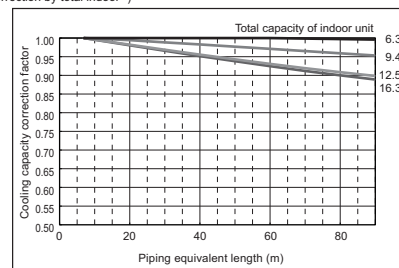


Fig.4 Correction of refrigerant piping length *1

*1 This figure shows the characteristic of PUMY-SM112VKM(-BS) and PUMY-SM112YKM(-BS).

Cooling

Design condition		
Outdoor dry bulb temperature		45°C
Total cooling load		10.6 kW
Room 1	Indoor dry bulb temperature	27°C
	Indoor wet bulb temperature	20°C
	Cooling load	4.6 kW
Room 2	Indoor dry bulb temperature	24°C
	Indoor wet bulb temperature	18°C
	Cooling load	6.0 kW
Other	Indoor/Outdoor piping equivalent length	60 m

Capacity of indoor unit

P·FY series	Model class of indoor unit	10	15	—	20	—	25	32	—	40	—	50	—	63	71	80	100	125	140
	Model capacity (kW)	1.2	1.7	—	2.2	—	2.8	3.6	—	4.5	—	5.6	—	7.1	8.0	9.0	11.2	14.0	16.0
M series	Model class of indoor unit	—	15	18	20	22	25	—	35	—	42	50	60	—	71	80	100	—	—
S series	Model capacity (kW)	—	1.5	1.8	2.0	2.2	2.5	—	3.5	—	4.2	5.0	6.0	—	7.1	8.0	10.0	—	—
P series	Model capacity (kW)	—	1.5	1.8	2.0	2.2	2.5	—	3.5	—	4.2	5.0	6.0	—	7.1	8.0	10.0	—	—

1. Cooling calculation

- Tentative selection of indoor units
 Room1: PEFY-M50 5.6 kW (Rated)
 Room2: PEFY-M71 8.0 kW (Rated)
 In this case, the total capacity is 13.6. (5.6 + 8.0 = 13.6)
- Tentative selection of outdoor unit
 Proper outdoor unit in this case is SM125 as the total capacity of the indoor units is 13.6.
 PUMY-SM125 14.0 kW (Rated)
- Calculation for the corrected capacity of the total indoor units (CTi)
 Correction factor for indoor design wet bulb temperature: Room 1 (20°C) 1.03 (Refer to Figure 1 in 7-2.)
 Room 2 (18°C) 0.94 (Refer to Figure 1 in 7-2.)

$$CTi = \Sigma (\text{Rated capacity of indoor unit} \times \text{Correction factor for indoor temperature})$$

$$= 5.6 \times 1.03 + 8.0 \times 0.94$$

$$= 13.3 \text{ kW}$$
- Calculation for the corrected capacity of the outdoor unit (CTo)
 Correction factor for outdoor temperature (45°C) 0.86 (Refer to Figure 2 in 7-2.)
 Correction factor for piping length (60 m) 0.90 (Refer to Figure 2 in 7-2.)

$$CTo = \text{Rated capacity of outdoor unit} \times \text{Correction factor for outdoor temperature} \times \text{Correction factor for piping length}$$

$$= 14.0 \times 0.86 \times 0.90$$

$$= 10.8 \text{ kW}$$
- Determination of maximum system capacity (CTx)
 Comparison between CTi and CTo:
 $CTi = 13.3 > CTo = 10.8$, thus, select CTo.
 $CTx = CTo = 10.8 \text{ kW}$
- Comparison with essential load
 Against the essential load 10.6 kW, the maximum system capacity is 10.8 kW: A proper outdoor unit is selected.
- Calculation for the maximum indoor unit capacity of each room
 When $CTx = CTo$, use the calculation formula below.
 Room1: $CTx \times \text{Corrected capacity for Room1}/CTi$

$$= 10.8 \times (5.6 \times 1.03)/13.3$$

$$= 4.7 \text{ kW}$$
 The capacity is enough for the cooling load of Room 1 (4.6 kW): A proper indoor unit is selected.
 Room2: $CTx \times \text{Corrected capacity for Room2}/CTi$

$$= 10.8 \times (8.0 \times 0.94)/13.3$$

$$= 6.1 \text{ kW}$$
 The capacity is enough for the cooling load of Room 2 (6.0 kW): A proper indoor unit is selected.

Note:

- If $CTx = CTi$, refer to the calculation formula in "Heating" to calculate the maximum indoor unit capacity of each room.
- Go on to the selection of units for heating after the selection for cooling has successfully completed. If failed, try again until proper units are selected.

Heating

Design condition		
Outdoor wet bulb temperature		2°C
Total heating load		13.2 kW
Room 1	Indoor dry bulb temperature	23°C
	Heating load	5.4 kW
Room 2	Indoor dry bulb temperature	23°C
	Heating load	7.8 kW
Other	Indoor/Outdoor piping equivalent length	60 m

Capacity of indoor unit

P-FY series	Model class of indoor unit	10	15	—	20	—	25	32	—	40	—	50	—	63	71	80	100	125	140
	Model Capacity (kW)	1.4	1.9	—	2.5	—	3.2	4.0	—	5.0	—	6.3	—	8.0	9.0	10.0	12.5	16.0	18.0
M series	Model class of indoor unit	—	15	18	20	22	25	—	35	—	42	50	60	—	71	80	100	—	—
S series	Model Capacity (kW)	—	1.7	2.1	2.3	2.5	2.9	—	4.0	—	4.8	5.7	6.9	—	8.1	9.3	11.2	—	—
P series	Model Capacity (kW)	—	1.7	2.1	2.3	2.5	2.9	—	4.0	—	4.8	5.7	6.9	—	8.1	9.3	11.2	—	—

2. Heating calculation

- Tentative selection of indoor units
 Room1: PEFY-M50 6.3kW.(Rated)
 Room2: PEFY-M71 9.0kW.(Rated)
 In this case, the total capacity is 15.3. (6.3 + 9.0 = 15.3)
- Tentative selection of outdoor unit
 Proper outdoor unit in this case is SM125 as the total capacity of the indoor units is 15.3.
 PUMY-SM125 16.0 kW
- Calculation for the corrected capacity of the total indoor units (CTi)
 Correction factor for indoor temperature: Room 1 (23°C) 0.88 (Refer to Figure 3 in 7-2.)
 Room 2 (23°C) 0.88 (Refer to Figure 3 in 7-2.)
 $CTi = \Sigma (\text{Rated capacity of indoor unit} \times \text{Correction factor for indoor temperature})$
 $= 6.3 \times 0.88 + 9.0 \times 0.88$
 $= 13.5 \text{ kW}$
- Calculation for the corrected capacity of the outdoor unit (CTo)
 Correction factor for outdoor temperature (2°C WB) 1.00 (Refer to Figure 4 in 7-2.)
 Correction factor for piping length (60 m) 0.96 (Refer to "Correcting Capacity".)
 Correction factor for defrosting 0.89 (Refer to Table 1.)
 $CTo = \text{Rated capacity of outdoor unit} \times \text{Correction factor for outdoor temperature} \times \text{Correction factor for piping length} \times$
 $\text{Correction factor for defrosting}$
 $= 16.0 \times 1.00 \times 0.96 \times 0.89$
 $= 13.7 \text{ kW}$

Table 1 Table of correction factor for frosting and defrosting

Outdoor inlet air temp. (°C)	6	4	2	0	-2	-4	-6	-8	-10	-15	-20
Correction factor	1.00	0.91	0.83	0.82	0.83	0.84	0.89	0.89	0.89	0.89	0.89

- Determination of maximum system capacity (CTx)
 Comparison between CTi and CTo:
 $CTi = 13.5 < CTo = 13.7$, thus, select CTi.
 $CTx = CTi = 13.5 \text{ kW}$
- Comparison with essential load
 Against the essential load 13.2 kW, the maximum system capacity is 13.5 kW: Proper indoor units have been selected.
- Calculation for the maximum indoor unit capacity of each room
 When $CTx = CTi$, use the calculation formula below.
 Room1: Rated capacity of Indoor unit $\times$ Correction factor for indoor temperature
 $= 6.3 \times 0.88$
 $= 5.5 \text{ kW}$
 The capacity is enough for the heating load of Room 1 (5.4 kW): A proper indoor unit is selected.
 Room2: Rated capacity of indoor unit $\times$ Corrected capacity for the indoor design temperature
 $= 9.0 \times 0.88$
 $= 7.9 \text{ kW}$
 The capacity is enough for the heating load of Room 2 (7.8 kW): A proper indoor unit is selected.

Note:

- If $CTx = CTo$, refer to the calculation formula in "Cooling" to calculate the maximum indoor unit capacity of each room.
- The selection of units is completed when proper units are selected.

3. Power input of outdoor unit
<Cooling>

(1) Rated power input of outdoor unit	4.81 kW
(2) Calculation of the average indoor temperature power input coefficient	
Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 44.7 °CD.B., Indoor temp. 20 °CW.B.)	1.15
Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 44.7 °CD.B., Indoor temp. 22 °CW.B.)	1.13
Average indoor temp. power input coefficient $(C_{ave}) = \sum_{k=1}^n \{c_k \times (M_k / \sum_{k=1}^n M_k)\}$	
n: Total number of the indoor units	
k: Number of the indoor unit	
c _k : Outdoor unit power input coefficient of k indoor unit room temp.	
M _k : Number part of the k indoor unit model (e.g. P80 → 80)	
$= 1.15 \times 40 / (40 + 50) + 1.13 \times 50 / (40 + 50)$	
$= 1.14$	
(3) No need to consider Coefficient of the partial load f'(CTi)	-
(4) Outdoor power input (PI _o)	
Maximum System Capacity (CT _{max}) = Total Outdoor unit Capacity (CT _o), so use the following formula	
PI _o = Outdoor unit Cooling Rated Power Input × C _{ave}	
$= 4.81 \times 1.14$	
$= 5.48 \text{ kW}$	

<Heating>

(1) Rated power input of outdoor unit 4.15 kW

(2) Calculation of the average indoor temperature power input coefficient

Coefficient of the outdoor unit for indoor unit 1 (Outdoor temp. 2 °CW.B., Indoor temp. 21 °CD.B.) 1.12

Coefficient of the outdoor unit for indoor unit 2 (Outdoor temp. 2 °CW.B., Indoor temp. 23 °CD.B.) 1.0

Average indoor temp. power input coefficient $(C_{ave}) = \sum_{k=1}^n \{c_k \times (M_k / \sum_{k=1}^n M_k)\}$

n: Total number of the indoor units
k: Number of the indoor unit
c_k: Outdoor unit power input coefficient of k indoor unit room temp.
M_k: Number part of the k indoor unit model (e.g. P80 → 80)

= 1.12 × 40/(40 + 50) + 1.0 × 50/(40 + 50)
= 1.05

(3) Coefficient of the partial load f(CT_i) 0.89

(4) Outdoor power input (P_{l_o})

Maximum System Capacity (CT_{max}) = Total Indoor unit Capacity (CT_i), so use the following formula
P_{l_o} = Outdoor unit Heating Rated Power Input × C_{ave} × f(CT_i)
= 4.15 × 1.05 × 0.89
= 3.88 kW

7-2. Correction by temperature

CITY MULTI could have varied capacity at different designing temperature. Using the nominal cooling/heating capacity value and the ratio below, the capacity can be observed at various temperature.

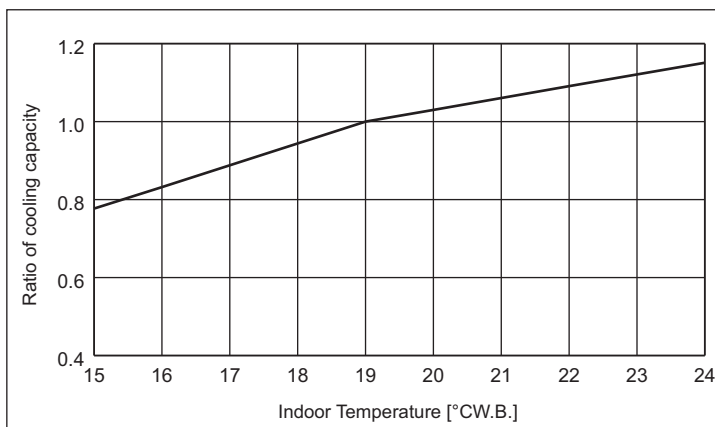
<Cooling>

PUMY-		SM112VKM	SM125VKM	SM140VKM
Nominal Cooling Capacity	kW	12.5	14.0	15.5
	BTU/h	42,650	47,768	52,886
Input	kW	3.32	4.19	4.81

PUMY-		SM112YKM	SM125YKM	SM140YKM
Nominal Cooling Capacity	kW	12.5	14.0	15.5
	BTU/h	42,650	47,768	52,886
Input	kW	3.32	4.19	4.81

<Figure 1> Indoor unit temperature correction

To be used to correct indoor unit capacity only

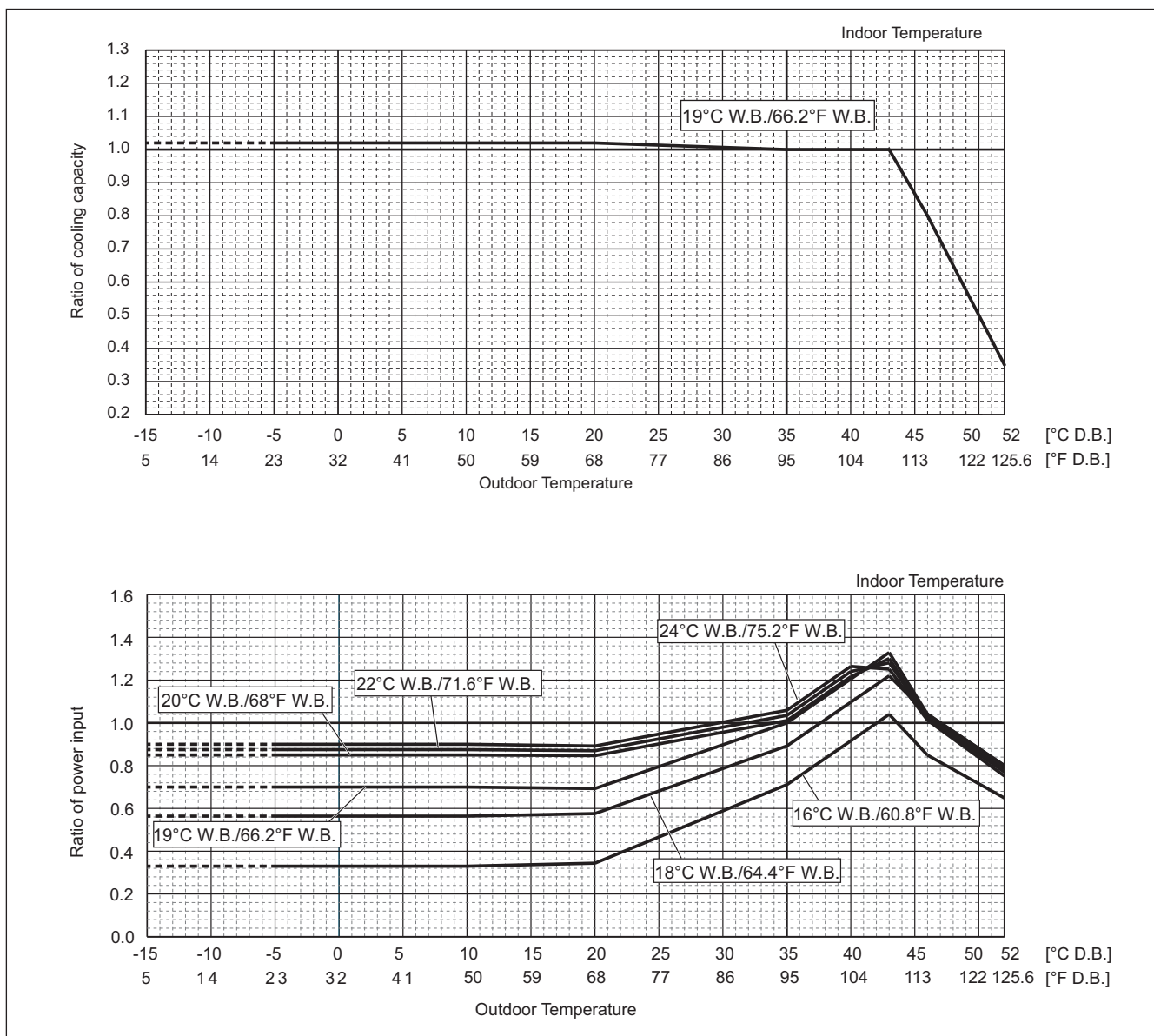


<Figure 2> Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



Values in the temperature correction diagram in the range below -5°C (23°F) are reference values and not guaranteed values. Do not use these reference values for selecting outdoor unit models.

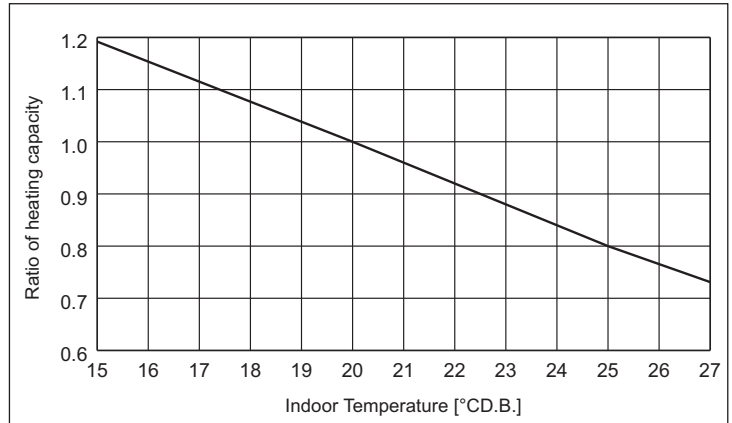
<Heating>

PUMY-		SM112VKM	SM125VKM	SM140VKM
Nominal Heating Capacity	kW	14.0	16.0	17.5
	BTU/h	47,768	54,592	59,712
Input	kW	3.33	3.73	4.15

PUMY-		SM112YKM	SM125YKM	SM140YKM
Nominal Heating Capacity	kW	14.0	16.0	17.5
	BTU/h	47,768	54,592	59,712
Input	kW	3.33	3.73	4.15

<Figure 3> Indoor unit temperature correction

To be used to correct indoor unit capacity only

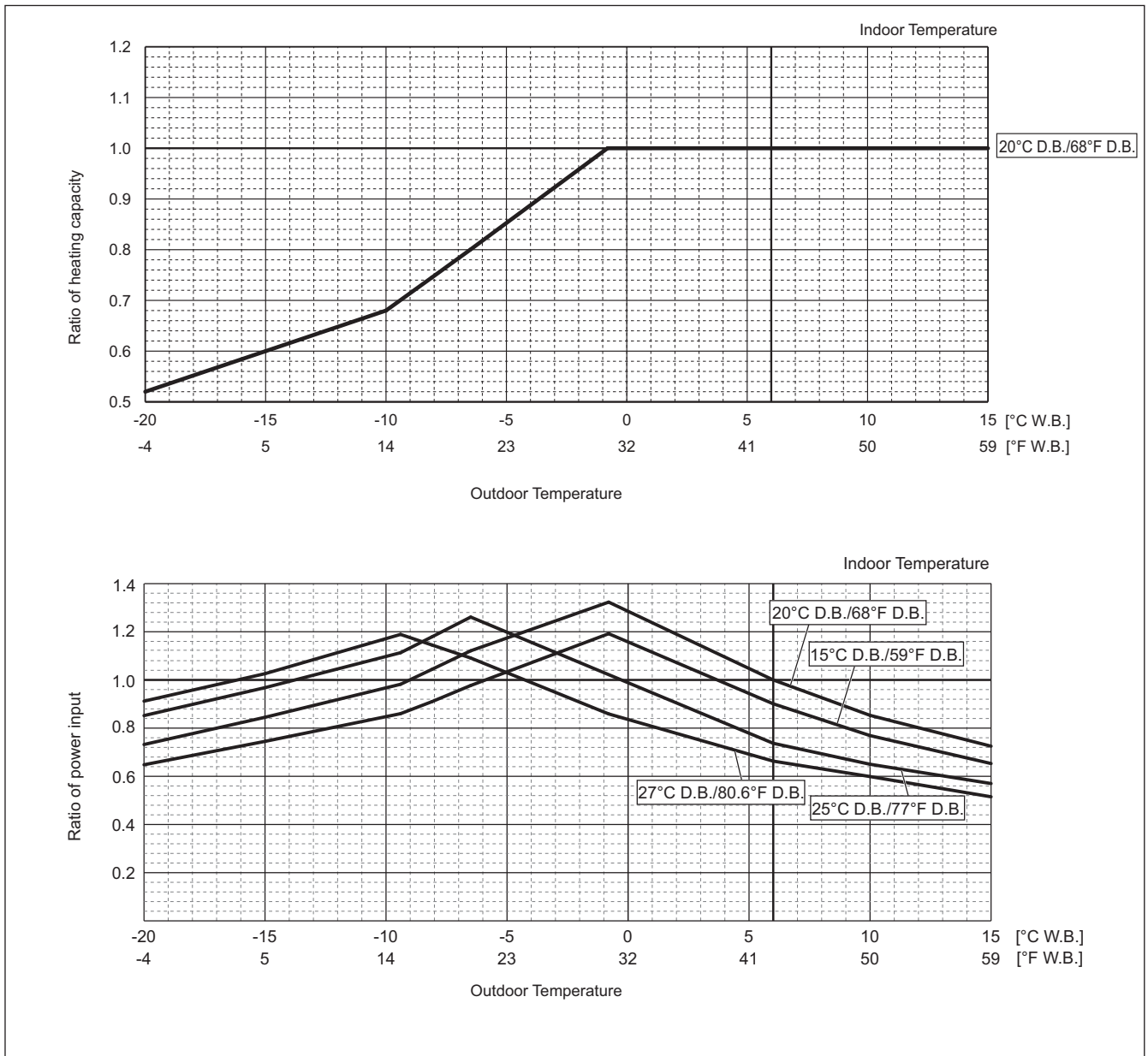


<Figure 4> Outdoor unit temperature correction

To be used to correct outdoor unit only

Outdoor unit capacity is NOT affected by the indoor temperature.

Outdoor unit power input is affected by the indoor and outdoor temperatures. Please consult the sales office for details.



7-3. Correction by total indoor

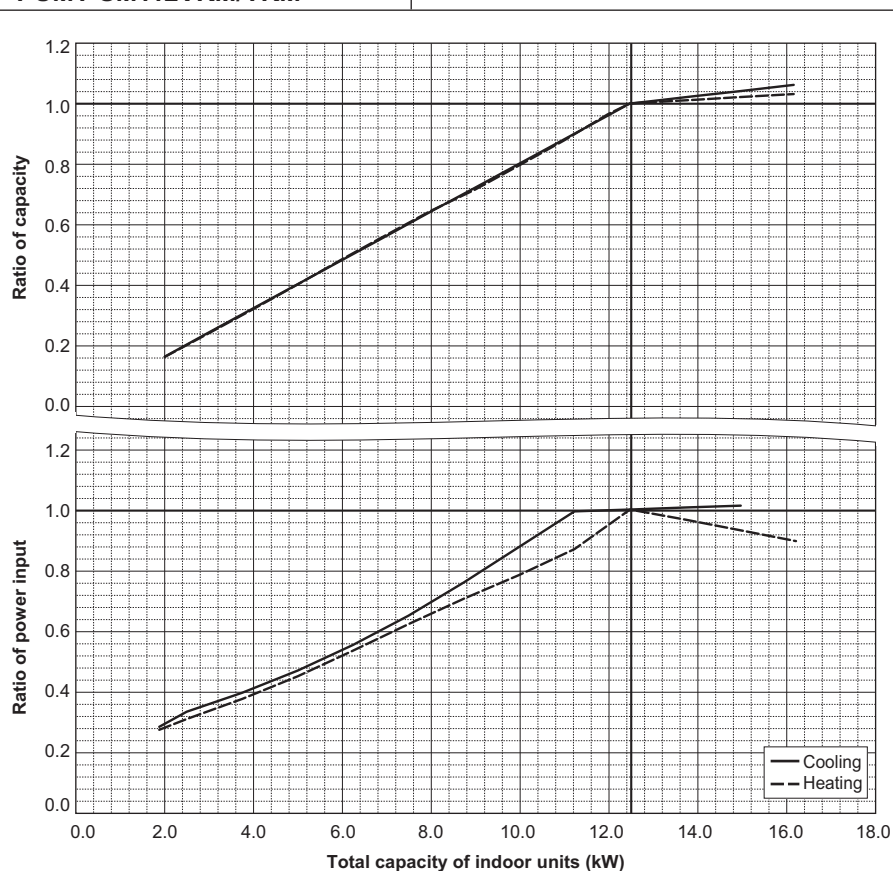
CITY MULTI system has different capacities and inputs when many combinations of indoor units with different total capacities are connected. Using following tables, the maximum capacity can be found to ensure the system is installed with enough capacity for a particular application.

PUMY-SM112VKM/YKM

Nominal Cooling Capacity	kW	12.5
	BTU/h	42,650
Input	kW	3.32

PUMY-SM112VKM/YKM

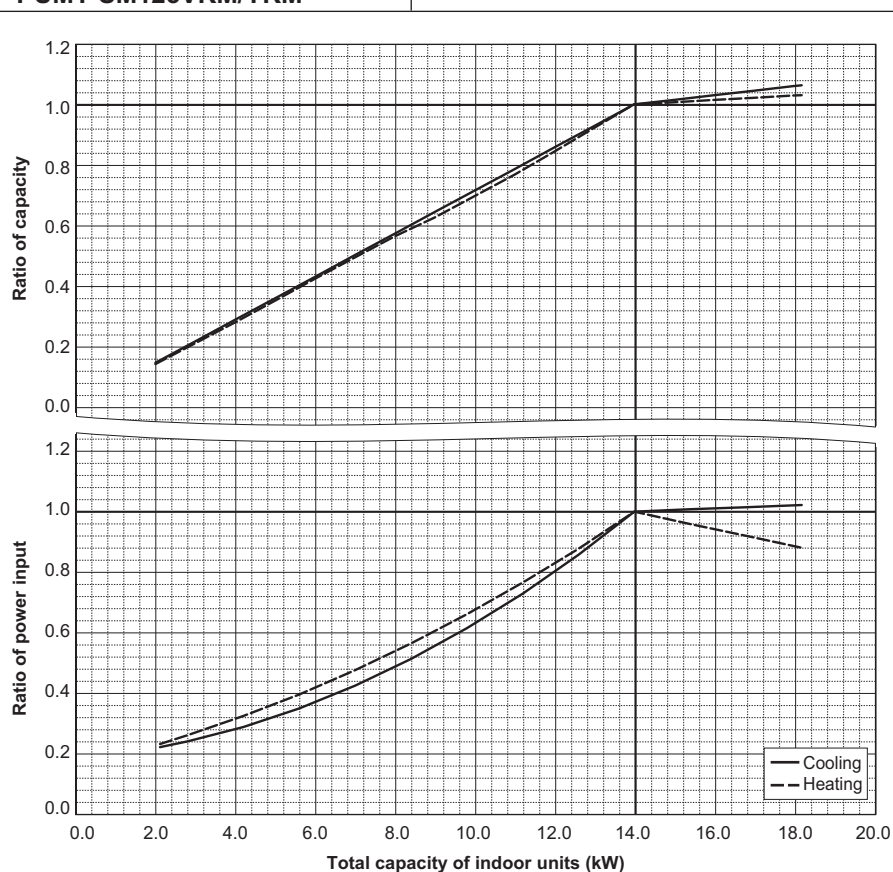
Nominal Heating Capacity	kW	14.0
	BTU/h	47,768
Input	kW	3.33

PUMY-SM112VKM/YKM**PUMY-SM125VKM/YKM**

Nominal Cooling Capacity	kW	14.0
	BTU/h	47,768
Input	kW	4.19

PUMY-SM125VKM/YKM

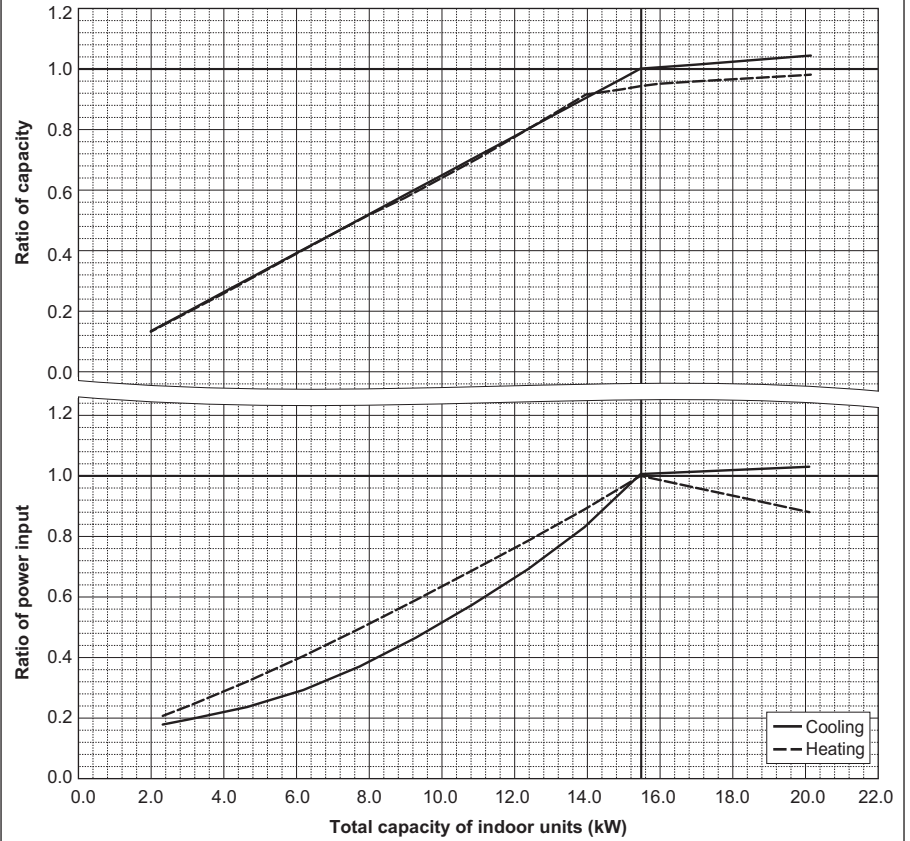
Nominal Heating Capacity	kW	16.0
	BTU/h	54,592
Input	kW	3.73

PUMY-SM125VKM/YKM

PUMY-SM140VKM/YKM		
Nominal Cooling Capacity	kW	15.5
	BTU/h	52,886
Input	kW	4.81

PUMY-SM140VKM/YKM		
Nominal Heating Capacity	kW	17.5
	BTU/h	59,712
Input	kW	4.15

PUMY-SM140VKM/YKM

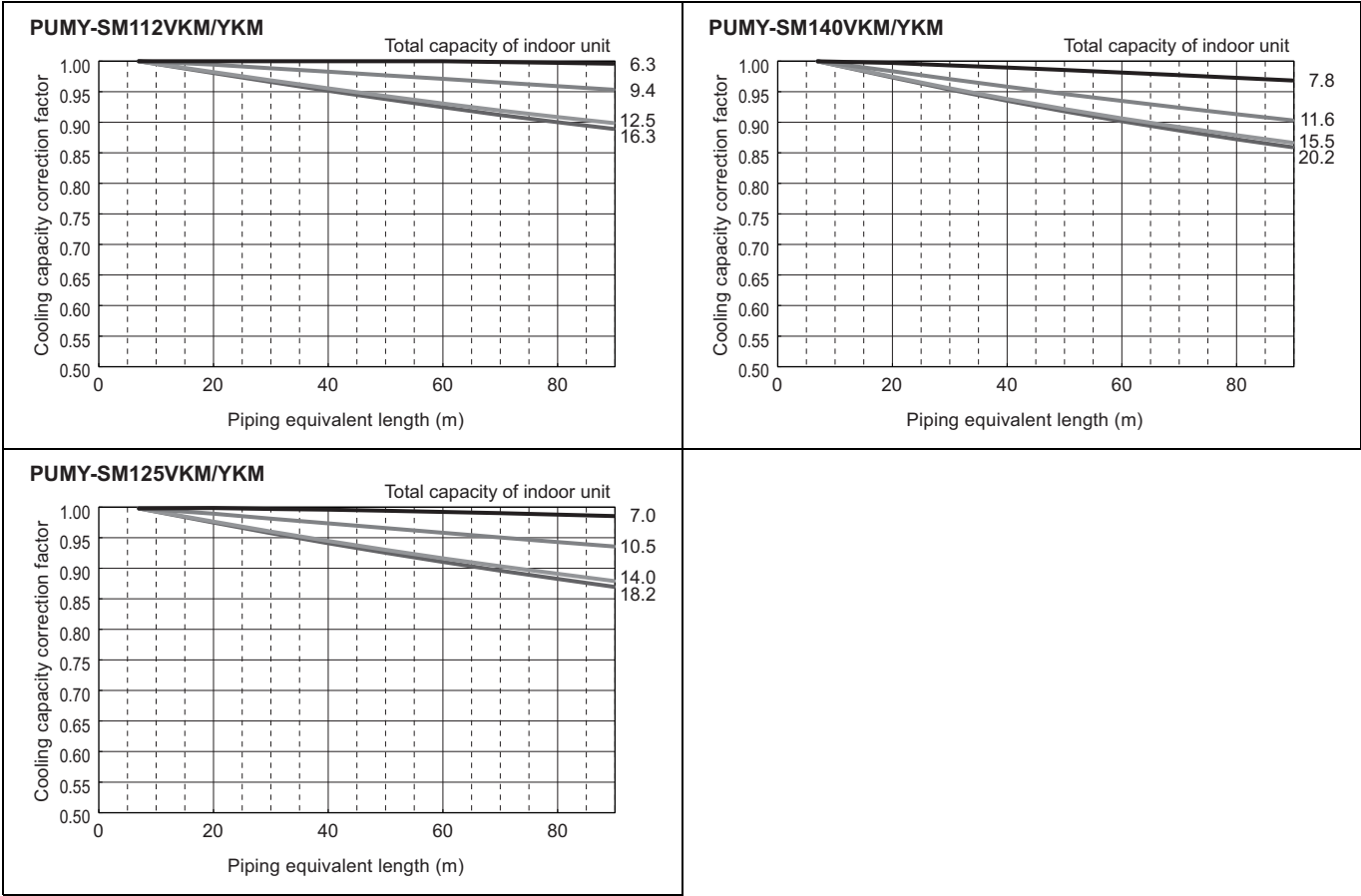


PUMY-SM-VKM, YKM

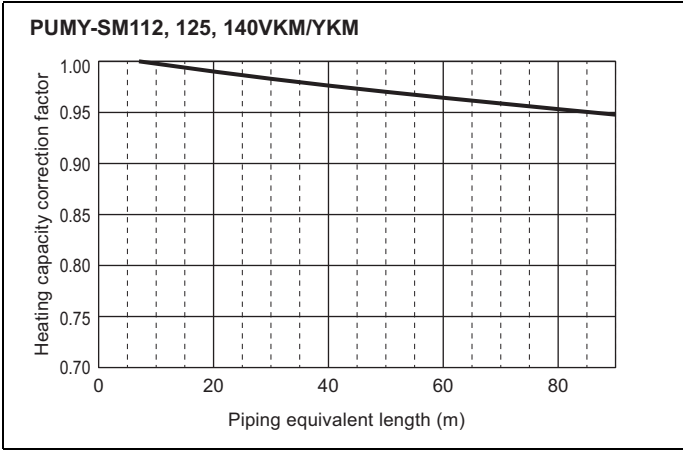
7-4. Correction by refrigerant piping length

CITY MULTI systems can have extended piping lengths if certain limitations are followed, but cooling/heating capacity could be reduced. Using following correction factor by equivalent piping length shown at 7-4-1 and 7-4-2, capacity can be found. 7-4-3 shows how to obtain the equivalent piping length.

7-4-1. Cooling capacity correction



7-4-2. Heating capacity correction



7-4-3. How to obtain the equivalent piping length

Equivalent length = (Actual piping length to the farthest indoor unit) + (0.30 x number of bends on the piping) m

7-5. Correction at frost and defrost

Due to frost at the outdoor heat exchanger and the automatic defrosting operation, the heating capacity of the outdoor unit should be considered by multiplying the correction factor which shown in the table below.

Table of correction factor at frosting and defrosting

Outdoor inlet air temp. °CWB	6	4	2	0	-2	-4	-6	-8	-10	-15	-20
Outdoor inlet air temp. °FWB	43	39	36	32	28	25	21	18	14	-5	-4
PUMY-SM112, 125, 140VKM/YKM	1.0	0.91	0.83	0.82	0.83	0.84	0.89	0.89	0.89	0.89	0.89

Note

- ♦ The high humidity condition (e.g., a foggy atmosphere) which causes frost forming on the heat exchanger will worsen the heating performance of the unit.
- ♦ The snow blowing to the heat exchanger will worsen the heating performance of the unit. Install a snow hood as a preventive measure.

8-1. JOINT

CITY MULTI units can be easily connected by using Joint sets and Header sets provided by Mitsubishi Electric. Refer to section "Piping Design" or the Installation Manual that comes with the Joint set for how to install the Joint set.

CMY-Y62-G-E

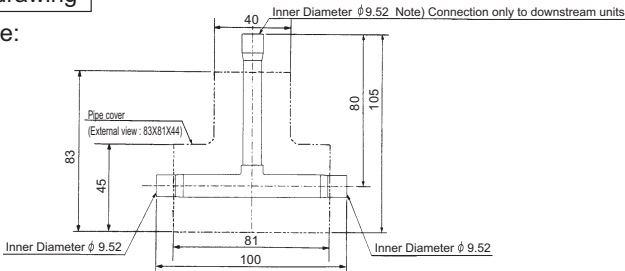
Unit: mm

1. Specification

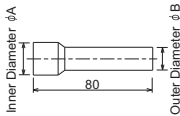
Main	Items	Details
	Number of ports	2 ports
Accessory	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
	Insulation material	Foamed polyethylene (one for each liquid and gas pipe)
Accessory	Reducer	10 reducers of 7 types (Refer to the external drawing for details.)

2. External drawing

For liquid pipe:

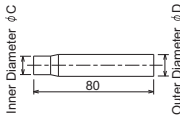
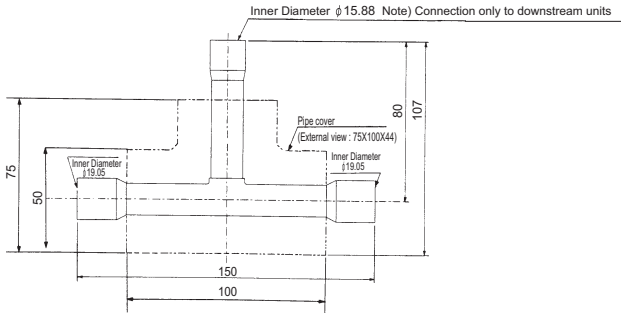


Reducer (Accessory):



A (Inner Diameter)	B (Outer Diameter)	Number of reducers
φ 12.7	φ 9.52	2
φ 19.05	φ 15.88	1
φ 22.2	φ 19.05	1

For gas pipe:



C (Inner Diameter)	D (Outer Diameter)	Number of reducers
φ 6.35	φ 9.52	2
φ 12.7	φ 15.88	1
φ 12.7	φ 19.05	1
φ 15.88	φ 19.05	2

8-2. HEADER

CITY MULTI units can be easily connected by using Joint sets and Header sets provided by Mitsubishi Electric. Refer to section "Piping Design" or the Installation Manual that comes with the Header set for how to install the Header set.

CMY-Y64-G-E

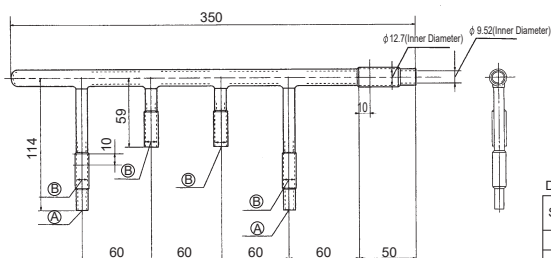
Unit: mm

1. Specification

	Items	Details
Main	Number of ports	3 ~ 4 ports
	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
	Insulation material	Foamed polyethylene
Accessory	Reducer	7 reducers of 5 types
	Cap	2 caps of 2 different types for each liquid and gas pipe 4 caps in total

2. External drawing

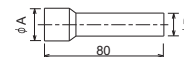
For liquid pipe:



Dimension table

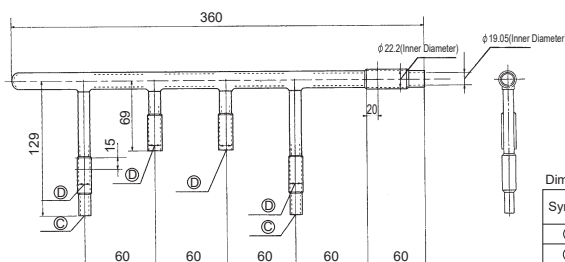
Symbol	Inner Diameter (mm)
(A)	φ 6.35
(B)	φ 9.52

Reducer (Accessory):



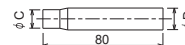
A (Inner Diameter)	B (Outer Diameter)	Number of reducers
φ 19.05	φ 15.88	1
φ 15.88	φ 12.7	2
φ 9.52	φ 6.35	2

For gas pipe:



Dimension table

Symbol	Inner Diameter (mm)
(C)	φ 12.7
(D)	φ 15.88



C (Inner Diameter)	D (Outer Diameter)	Number of reducers
φ 15.88	φ 19.05	1
φ 9.52	φ 12.7	1

CMY-Y68-G-E

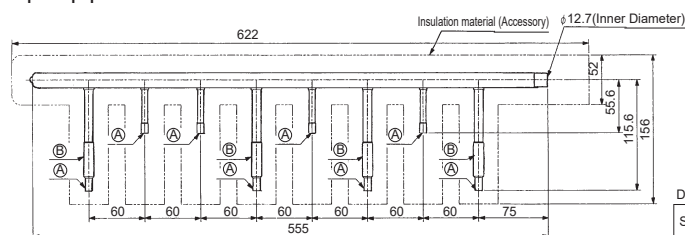
Unit: mm

1. Specification

	Items	Details
Main	Number of ports	5 ~ 8 ports
	Number of branch joints	One for each liquid and gas pipe
	Pipe material	Phosphorus deoxidized copper C1220T-OL (JIS H3300)
	Insulation material	Foamed polyethylene
Accessory	Reducer	3 reducers of 3 types
	Cap	3 caps for each liquid and gas pipe 6 in total

2. External drawing

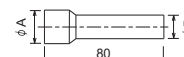
For liquid pipe:



Dimension table

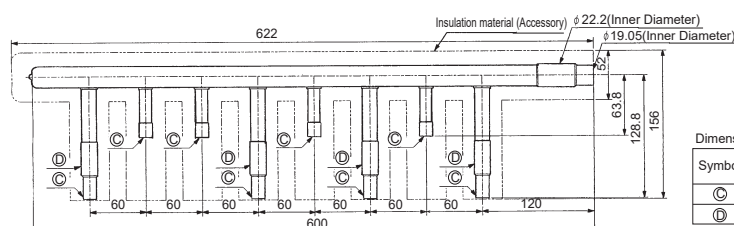
Symbol	Inner Diameter (mm)
(A)	φ 6.35
(B)	φ 9.52

Reducer (Accessory):



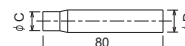
A (Inner Diameter)	B (Outer Diameter)	Number of reducers
φ 19.05	φ 15.88	1
φ 12.7	φ 9.52	1

For gas pipe:



Dimension table

Symbol	Inner Diameter (mm)
(C)	φ 12.7
(D)	φ 15.88



C (Inner Diameter)	D (Outer Diameter)	Number of reducers
φ 15.88	φ 19.05	1

PUMY-SM-VKM, YKM

(1) PAC-MMK40/60BC

1. Specification

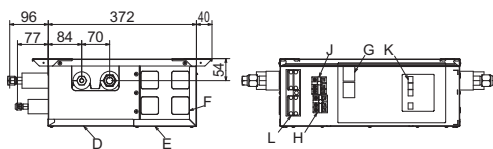
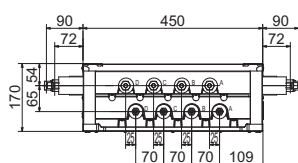
* The piping connection size differs according to the type and capacity of outdoor/indoor units.
Match the piping connection size of branch box with outdoor/indoor unit. If the piping connection size of branch box does not match the piping connection size of outdoor/indoor unit, use optional different-diameter (deformed) joints to the branch box side.
(Connect deformed joint directly to the branch box side.)

Technical drawing of a square frame. The overall width is labeled 'A' with a dimension of 412. The overall height is labeled 'A' with a dimension of 402. The width of the frame's legs is labeled 'B'. The height of the frame's legs is labeled 'C'. The thickness of the frame's legs is labeled '12'. The drawing includes a table with the following content:

mm
unit

- A: Suspension bolt pitch
- B: To indoor unit
- C: To outdoor unit
- D: Service panel
- E: Electric cover
- F: Rubber bush
- G: Terminal block (To indoor unit on controller board)
- H: Terminal block (To power supply / To outdoor unit)
- J: Terminal block (Transmission line)
- K: Terminal block (To SENSOR AND ALARM KIT)
- L: Cable clamp

	To indoor unit				To outdoor unit
	A	B	C	D	
Liquid pipe	ø6.35	ø6.35	ø6.35	ø6.35	ø9.52
Gas pipe	ø9.52	ø9.52	ø9.52	ø9.52	ø15.88

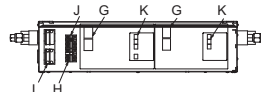
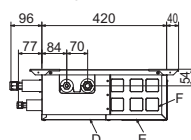
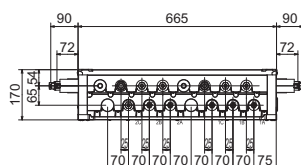


1. Specification

* The piping connection size differs according to the type and capacity of outdoor/indoor units.
Match the piping connection size of branch box with outdoor/indoor unit. If the piping connection size of branch box does not match the piping connection size of outdoor/indoor unit, use optional different-diameter (deformed) joints to the branch box side.
(Connect deformed joint directly to the branch box side.)

- A: Suspension bolt pitch
- B: To indoor unit
- C: To outdoor unit
- D: Service panel
- E: Electric cover
- F: Rubber bush
- G: Terminal block (To indoor unit on controller board)
- H: Terminal block (To power supply / To outdoor unit)
- J: Terminal block (Transmission line)
- K: Terminal block (To SENSOR AND ALARM KIT)
- L: Cable clamp

	To indoor unit						To outdoor unit
	1A	1B	1C	2A	2B	2C	
Liquid pipe	ø6.35	ø6.35	ø6.35	ø6.35	ø6.35	ø9.52	ø9.52
Gas pipe	ø9.52	ø9.52	ø12.7	ø9.52	ø9.52	ø15.88	ø15.88



8-4. Sensor and alarm kit

When connecting a Branch Box to the PUMY-SM112/125/140V(Y)KM unit, necessary to connect the Sensor and alarm kit provided by Mitsubishi Electric. Refer to the Installation Manual for the outdoor unit, branch box and Sensor and alarm kit for how to install the Sensor and alarm kit.

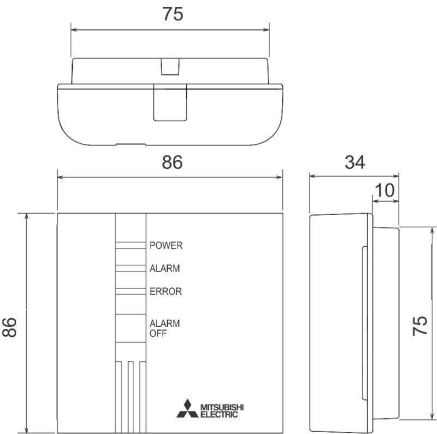
PAC-SK60SA-E

Unit: mm

1. Specification

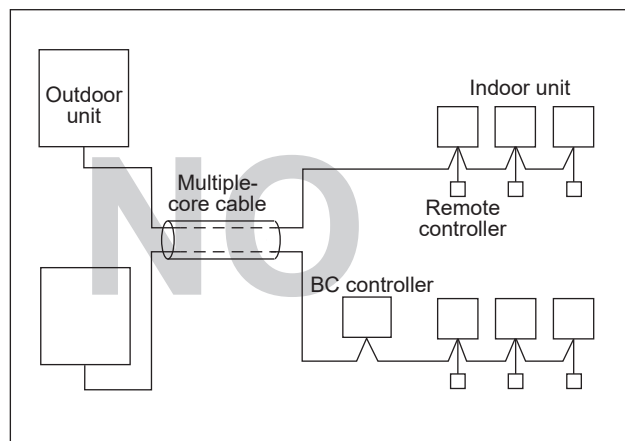
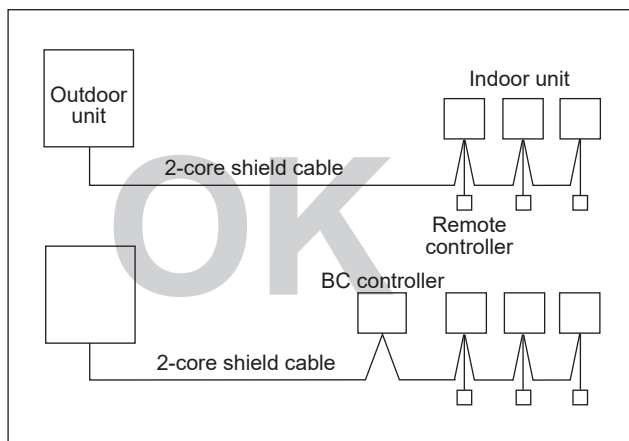
Input Voltage	10.5-13.5VDC
Power consumption	2W
Size H×W×D (mm)	86×86×34 (mm)
Sounder	65dB (1m)

2. External drawing



9-1. General cautions

- ① Follow ordinance of your governmental organization for technical standard related to electrical equipment, wiring regulations, and guidance of each electric power company.
- ② Wiring for control (hereinafter referred to as transmission cable) shall be (50mm[1-5/8in.] or more) apart from power source wiring so that it is not influenced by electric noise from power source wiring. (Do not insert transmission cable and power source wire in the same conduit.)
- ③ Be sure to provide designated grounding work to outdoor unit.
- ④ Give some allowance to wiring for electrical part box of indoor and outdoor units, because the box is sometimes removed at the time of service work.
- ⑤ Never connect 380~415V(220~240V) power source to terminal block of transmission cable. If connected, electrical parts will be damaged.
- ⑥ Use 2-core shield cable for transmission cable. If transmission cables of different systems are wired with the same multiple-core cable, the resultant poor transmitting and receiving will cause erroneous operations.
- ⑦ When extending the transmission line, make sure to extend the shield cable as well.



9-2. Power supply for Outdoor unit

9-2-1. Electrical characteristics of Outdoor unit at cooling mode

Symbols: MCA (Max Circuit Amps = $1.25 \times \text{Temperature correction} \times \text{RLA}$)
 RLA (Rated Load Amps), SC (Starting Current)

Model name	Units			Power supply	Compressor		FAN	RLA (A)
	Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	
PUMY-SM112VKM	50	220	Max.: 264V Min.: 198V	30.5	2.3	8	0.17×1	15.40/14.73/14.12
PUMY-SM125VKM		230		30.5	2.6	8	0.20×1	19.43/18.59/17.81
PUMY-SM140VKM		240		30.5	3.0	8	0.20×1	22.45/21.47/20.58

Model name	Units			Power supply	Compressor		FAN	RLA (A)
	Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	
PUMY-SM112VKM	60	220	Max.: 242V Min.: 198V	30.5	2.3	8	0.17×1	15.40
PUMY-SM125VKM				30.5	2.6	8	0.20×1	19.43
PUMY-SM140VKM				30.5	3.0	8	0.20×1	22.45

Model name	Units			Power supply	Compressor		FAN	RLA (A)
	Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	
PUMY-SM112YKM	50	380	Max.: 456V Min.: 342V	13.0	2.3	4	0.17×1	5.31/5.04/4.86
PUMY-SM125YKM		400		13.0	2.6	4	0.20×1	6.70/6.37/6.14
PUMY-SM140YKM		415		13.0	3.0	4	0.20×1	7.74/7.35/7.09

Model name	Units			Power supply	Compressor		FAN	RLA (A)
	Hz	Volts	Voltage range	MCA (A)	Output (kW)	SC (A)	Output (kW)	
PUMY-SM112YKM	60	380	Max.: 418V Min.: 342V	13.0	2.3	4	0.17×1	5.31
PUMY-SM125YKM				13.0	2.6	4	0.20×1	6.70
PUMY-SM140YKM				13.0	3.0	4	0.20×1	7.74

9-3. Power cable specifications

Thickness of wire for main power supply, capacities of the switch and system impedance

■ PUMY-SP-VKM2 / PUMY-SP-YKM2

<Outdoor unit> <When power is supplied to outdoor unit and branch box separately>

	Model	Minimum wire thickness (mm ²)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)	Max. Permissible System Impedance
		Main cable	Branch	Ground		Capacity	Fuse		
Outdoor unit	PUMY-SM112VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	32	32	32	-
	PUMY-SM125VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	32	32	32	-
	PUMY-SM140VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	32	32	32	-
	PUMY-SM112YKM	2.5	-	2.5	16A 30mA 0.1sec. or less	16	16	16	-
	PUMY-SM125YKM	2.5	-	2.5	16A 30mA 0.1sec. or less	16	16	16	-
	PUMY-SM140YKM	2.5	-	2.5	16A 30mA 0.1sec. or less	16	16	16	-

<Outdoor unit> <When power is supplied to branch box from the outdoor unit>

	Model	Minimum wire thickness (mm ²)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)	Max. Permissible System Impedance
		Main cable	Branch	Ground		Capacity	Fuse		
Outdoor unit	PUMY-SM112VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	40	40	40	-
	PUMY-SM125VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	40	40	40	-
	PUMY-SM140VKM	6.0	-	6.0	32A 30mA 0.1sec. or less	40	40	40	-
	PUMY-SM112YKM	4.0	-	4.0	16A 30mA 0.1sec. or less	25	25	25	-
	PUMY-SM125YKM	4.0	-	4.0	16A 30mA 0.1sec. or less	25	25	25	-
	PUMY-SM140YKM	4.0	-	4.0	16A 30mA 0.1sec. or less	25	25	25	-

<Indoor units> <When power is supplied to indoor unit and outdoor unit separately>

	Model	Minimum wire thickness (mm ²)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)	Max. Permissible System Impedance
		Main cable	Branch	Ground		Capacity	Fuse		
Total operating current of the indoor unit	F0 = 16A or less *2	1.5	1.5	1.5	20A current sensitivity *3	16	16	40	-
	F0 = 25A or less *2	2.5	2.5	2.5	30A current sensitivity *3	25	25	40	-
	F0 = 32A or less *2	4.0	4.0	4.0	40A current sensitivity *3	32	32	40	-

*1 The Ground-fault interrupter should support Inverter circuit.

The Ground-fault interrupter should combine using of local switch or wiring breaker.

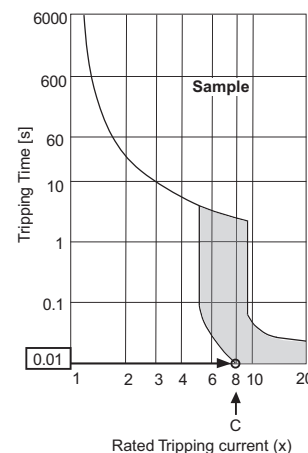
*2 Please take the larger of F1 or F2 as the value for F0.

F1 = Total operating maximum current of the indoor units × 1.2

F2 = {V1 × (Quantity of Type1)/C} + {V1 × (Quantity of Type2)/C} + {V1 × (Quantity of Type3)/C} + ... + {V1 × (Quantity of Type12)/C}

Connect to Branch box (PAC-MMK·BC)

Indoor unit		V1	V2
Type 1	PCA-M-KA2	19.8	2.4
	SEZ-M-DA(L)2		
Type 2	PEAD-M-JA(L)2	18.6	3.0
Type 3	PLA-M-EA2	17.1	2.4
	SLZ-M-FA2		
Type 4	MLZ-KP-VF	9.9	
Type 5	MLZ-KY-VG	7.4	
	MSZ-AP-VG(K)		
	MSZ-AY-VGK		
	MSZ-EF-VG-E2/ER2/ET2, MSZ-EF-VGK-E1/ER1/ET1		
	MSZ-LN-VG2		
	MSZ-RW-VG		
Type 6	MSZ-EF-VG-E1/ER1/ET1	6.8	
Type 7	MSZ-BT-VG(K)	6.1	
Type 8	Branch box (PAC-MMK40BC)	5.1	3.0
Type 9	Branch box (PAC-MMK60BC)	10.2	6.0



Connect to City Multi

Indoor unit		V1	V2
Type 10	PCFY-MS-VKM	19.8	2.4
	PKFY-MS-VLM		
	PKFY-MS-VKM		
Type 11	PEFY-M-VMA(L)-A1	18.6	3.0
Type 12	PLFY-M-VEM6	17.1	2.4
	PLFY-MS-VEM		
	PLFY-MS-VFM		

C: Multiple of tripping current at tripping time 0.01s

Please pick up "C" from the tripping characteristic of the breaker.

<Example of "F2" calculation>

Condition PLFY-VBM × 4 + PEFY-VMA × 1, C = 8 (refer to right sample chart)

F2 = 19.8 × 4/8 + 38 × 1/8

= 14.65

→16 A breaker (Tripping current = 8 × 16 A at 0.01s)

*3 Current sensitivity is calculated using the following formula.

G1 = (V2 × Quantity of Type1) + (V2 × Quantity of Type2) + (V2 × Quantity of Type3) + (V2 × Quantity of Type4) + ... + (V2 × Quantity of Type12) + (V3 × Wire length [km])

G1	Current sensitivity
30 or less	30 mA 0.1sec or less
100 or less	100 mA 0.1sec or less

Wire thickness	V3
1.5 mm ²	48
2.5 mm ²	56
4.0 mm ²	66

1. Use dedicated power supplies for the outdoor unit and indoor unit.
2. Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.
3. The wire size is the minimum value for metal conduit wiring. If the voltage drops, use a wire that is one rank thicker in diameter. Make sure the power-supply voltage does not drop more than 10%. Make sure that the voltage imbalance between the phases is 2% or less.
4. Specific wiring requirements should adhere to the wiring regulations of the region.
5. Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57). For example, use wiring such as YZW.
6. A switch with at least 3 mm contact separation in each pole shall be provided by the Air Conditioner installer.

⚠ WARNING

- ◆ Be sure to use specified wires for connections and ensure no external force is imparted to terminal connections. If connections are not fixed firmly, heating or fire may result.
- ◆ Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.

⚠ CAUTION

- ◆ The breakers for current leakage should support Inverter circuit. (e.g. Mitsubishi Electric's NV-S-Series or equivalent). If no earth leakage breaker is installed, it may cause an electric shock.
- ◆ Breakers for current leakage should combine using of switch.
- ◆ Do not use anything other than a breaker with the correct capacity. Using a breaker of too large capacity may cause malfunction or fire.
- ◆ If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the upstream side of the power supply system may both operate. Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.

Note

- ◆ This device is intended for the connection to a power supply system with a maximum permissible system impedance shown in the above table at the interface point (power service box) of the user's supply.
- ◆ The user must ensure that this device is connected only to a power supply system which fulfils the requirement above.
If necessary, the user can ask the public power supply company for the system impedance at the interface point.

9-4. Power supply examples

The local standards and/or regulations is applicable at a higher priority.

9-4-1. PUMY-SM112, 125, 140VKM

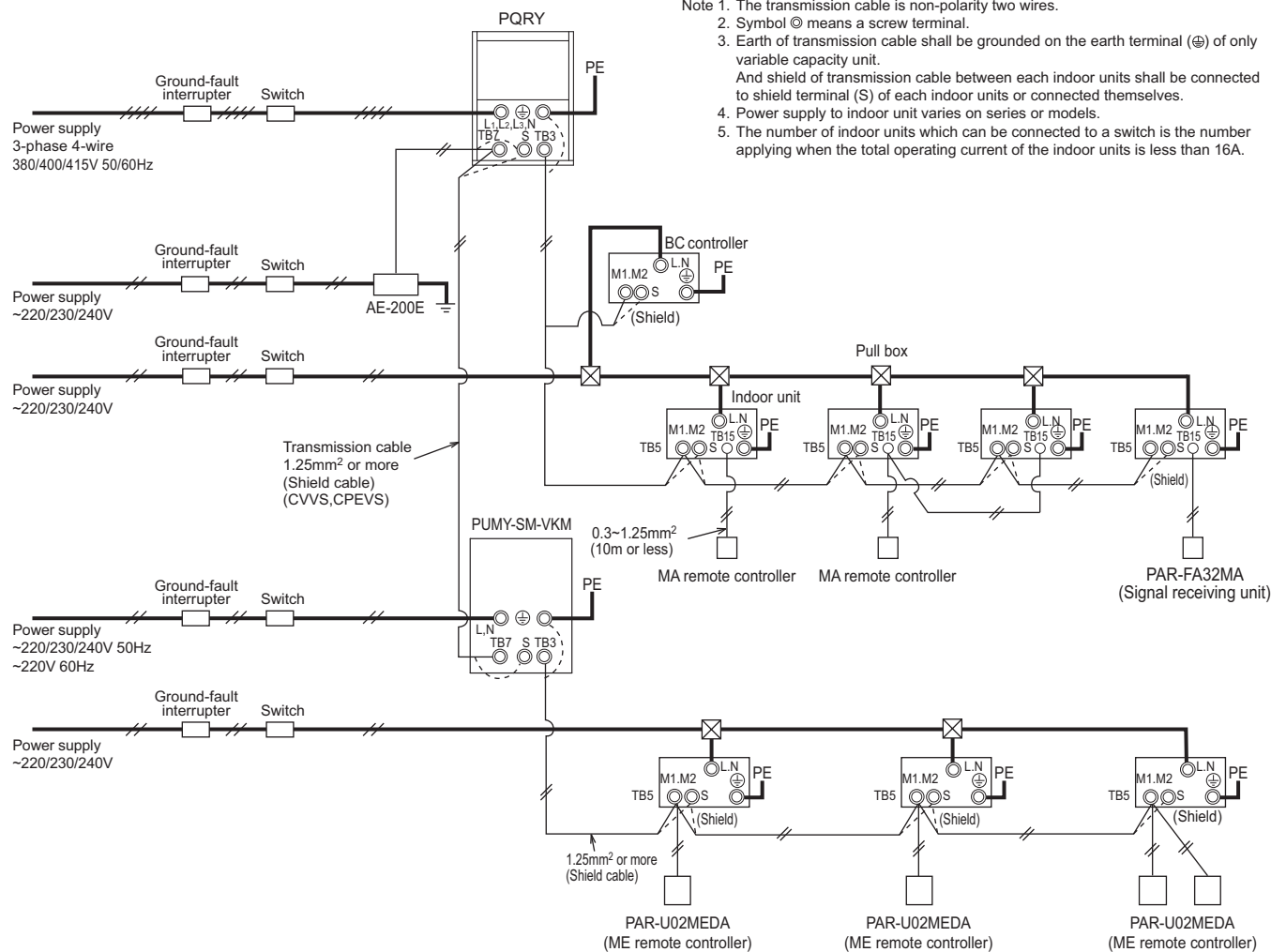
Note 1. The transmission cable is non-polarity two wires.

Note 2. Symbol $\odot$ means a screw terminal.

Note 3. Earth of transmission cable shall be grounded on the earth terminal ($\oplus$) of only variable capacity unit.

Note 4. Power supply to indoor unit varies on series or models.

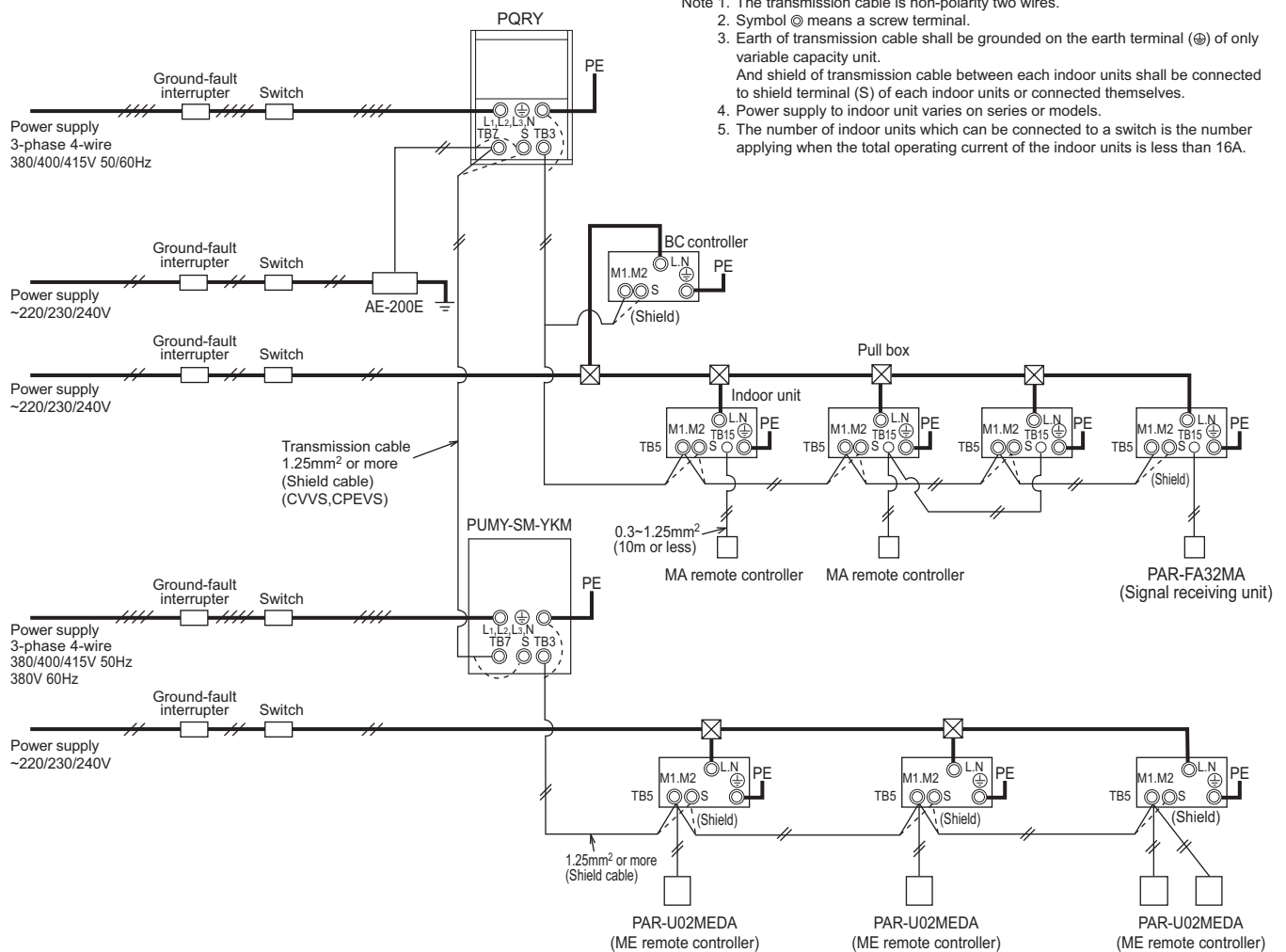
Note 5. The number of indoor units which can be connected to a switch is the number applying when the total operating current of the indoor units is less than 16A.



The local standards and/or regulations is applicable at a higher priority.

9-4-2. PUMY-SM112, 125, 140YKM

PUMY-SM-YKM, YKM

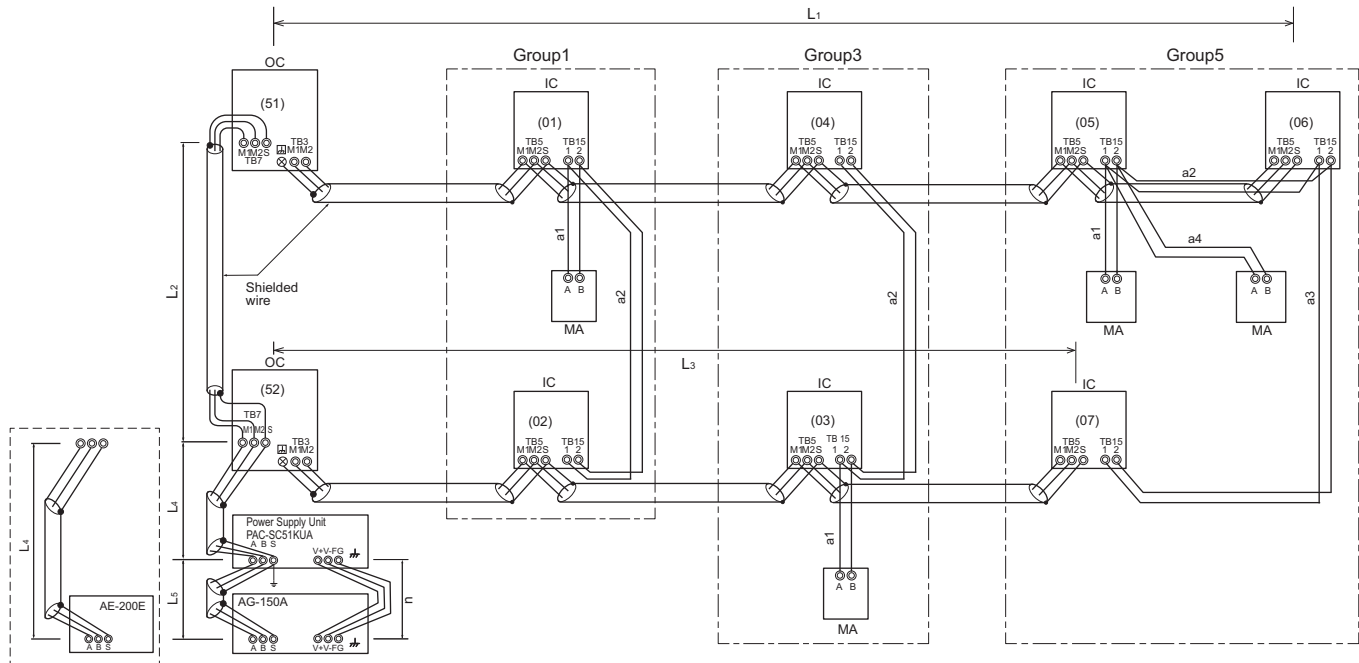


10-1. Transmission cable length limitation

10-1-1. Using MA Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	$L_1+L_2+L_3, L_1+L_2+L_4+L_5, L_3+L_4+L_5$	$\leq 500\text{m}[1640\text{ft}]$	1.25mm ² [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	L_1, L_3, L_2+L_4, L_5	$\leq 200\text{m}[656\text{ft}]$	1.25mm ² [AWG16] or thicker
Max. length from MA to Indoor for each group	$a_1+a_2, a_1+a_2+a_3+a_4$	$\leq 200\text{m}[656\text{ft}]$	0.3-1.25mm ² [AWG22-16]
24VDC to AG-150A	n	$\leq 50\text{m}[164\text{ft.}]$	0.75-2.0 mm ² [AWG18-14]



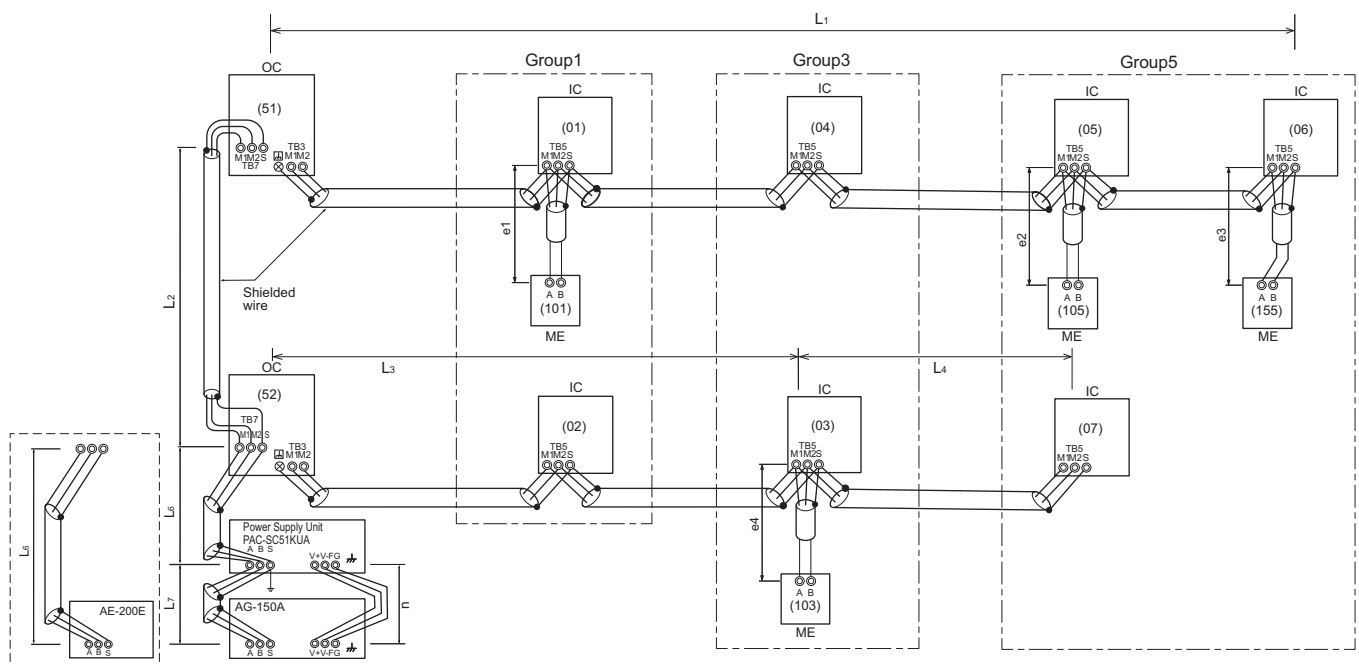
OC: Outdoor unit; IC: Indoor unit; MA: MA remote controller

10-1-2. Using ME Remote controller

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max. length via Outdoor (M-NET cable)	$L_1+L_2+L_3+L_4, L_1+L_2+L_6+L_7, L_1+L_2+L_3+L_5, L_3+L_4+L_6+L_7, L_3+L_5+L_6+L_7, L_4+L_5$	$\leq 500\text{m}[1640\text{ft}]$	1.25mm ² [AWG16] or thicker
Max. length to Outdoor (M-NET cable)	$L_1, L_3+L_4, L_2+L_6, L_7, L_3+L_5$	$\leq 200\text{m}[656\text{ft}]$	1.25mm ² [AWG16] or thicker
Max. length from ME to Indoor	e_1, e_2, e_3, e_4	$\leq 10\text{m}[32\text{ft}] *1$	0.3-1.25mm ² [AWG22-16] *1
24VDC to AG-150A	n	$\leq 50\text{m}[164\text{ft.}]$	0.75-2.0 mm ² [AWG18-14]

*1. If the length from ME to Indoor exceed 10m, use 1.25 mm²[AWG16] shielded cable, but the total length should be counted into Max. length via Outdoor.



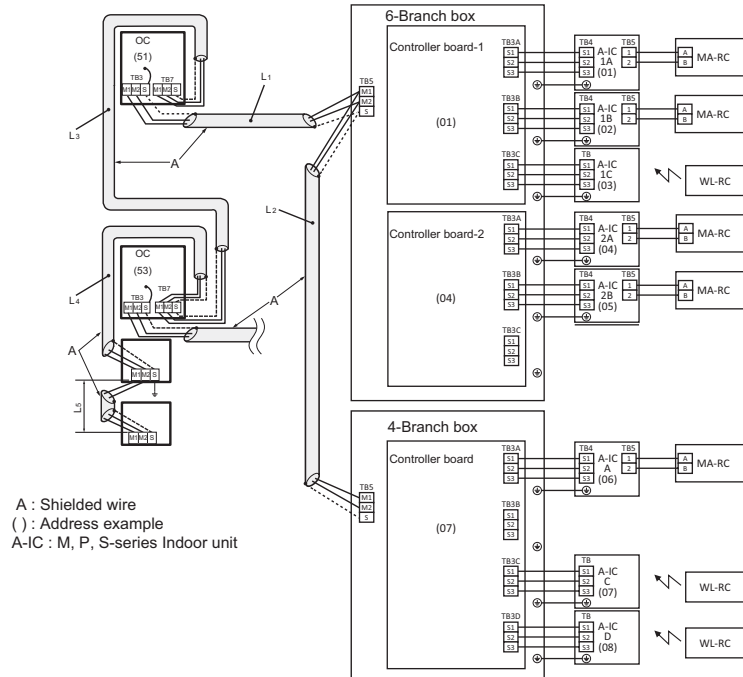
OC: Outdoor unit; IC: Indoor unit; ME: ME remote controller

10-1-3. Using a Branch Box

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max length via outdoor units (M-NET cable):	$L_1 + L_2 + L_3 + L_4 + L_5$	$\leq 500\text{m}[1640\text{ft}]$	1.25mm ² [AWG16] or thicker
Max transmission cable length (M-NET cable):	$L_1 + L_2, L_3 + L_4, L_5$	$\leq 200\text{m}[656\text{ft}]$	1.25mm ² [AWG16] or thicker

<Example of Transmission Cable Wiring: When Using a Branch Box>

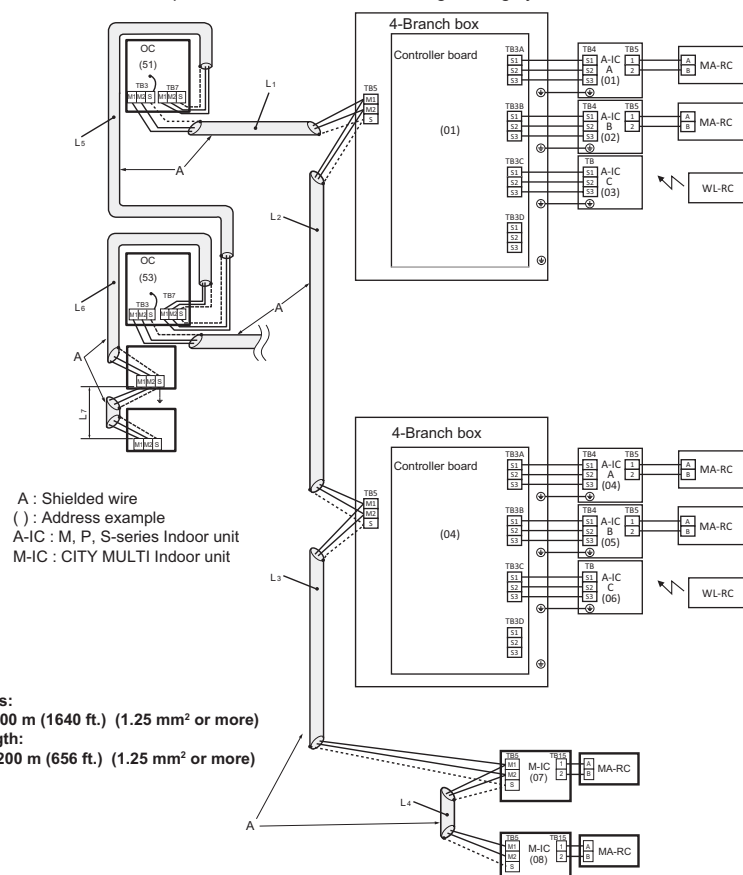


10-1-4. Mixing system

Long transmission cable causes voltage down, therefore, the length limitation should be obeyed to secure proper transmission.

Max length via outdoor units:	$L_1 + L_2 + L_3 + L_4 + L_5 + L_6 + L_7$	$\leq 500\text{m}[1640\text{ft}]$	1.25mm ² [AWG16] or thicker
Max transmission cable length:	$L_1 + L_2 + L_3 + L_4, L_5 + L_6, L_7$	$\leq 200\text{m}[656\text{ft}]$	1.25mm ² [AWG16] or thicker

<Example of Transmission Cable Wiring: Mixing system>



<Permissible length>

Longest length via outdoor units:
 $L_1 + L_2 + L_3 + L_4 + L_5 + L_6 + L_7 \leq 500 \text{ m (1640 ft.) (1.25 mm}^2 \text{ or more)}$
 Longest transmission cable length:
 $L_1 + L_2 + L_3 + L_4, L_5 + L_6, L_7 \leq 200 \text{ m (656 ft.) (1.25 mm}^2 \text{ or more)}$

PJMY-SM-VKM, YKM

10-2. Transmission cable specifications

	Transmission cables (Li)	MA Remote controller cables	ME Remote controller cables
Type of cable	Shielded cables (2-core) CVVS, CPEVS, and MVVS	VCTF, VCTFK, CVV, VVR, VVF, VCT	Shielded cables (2-core) CVVS, CPEVS, and MVVS
Cable size	Larger than 1.25 mm ² [AWG16], or ø1.2 mm or above	0.3 to 1.25 mm ² [AWG22 to 16] *1 *5	0.3 to 1.25 mm ² [AWG22 to 16] *1 *6
Maximum overall line length	Refer to 10-1.	200 m [656 ft] *3 *4	10 m [32 ft] *2

*1 The use of cables that are smaller than 0.75 mm² (AWG18) is recommended for easy handling.

*2 The section of the cable that exceeds 10 m [32 ft] must be included in the maximum indoor-outdoor transmission line distance.

*3 Max. 70 m [229 ft] for PAR-CT01MA series

*4 Max. 150 m [492 ft] for PAR-FS01MA series

*5 To wire PAR-CT01MA series, PAR-FS01MA series, PAR-4"x"MA series, PAR-3"x"MA series ("x" represents 0 or later), or Simple MA remote controller, use a cable with a size of 0.3 mm² (AWG 22).

*6 When connected to the terminal block on the Simple remote controller, use a cable with a size of 0.75 to 1.25 mm² (AWG18 to 16).

CVVS, MVVS: PVC insulated PVC sheathed shielded control cable
CPEVS: PE insulated PVC sheathed shielded communication cable
CVV: PVC insulated PVC sheathed control cable

10-3. System configuration restrictions

10-3-1. Common restrictions for the CITY MULTI system

For each Outdoor/Heat source unit, the maximum connectable quantity of Indoor unit is specified at its Specifications table.

- A) 1 Group of Indoor units can have 1-16 Indoor units;
*OA processing unit GUF-RD(H) is considered as Indoor unit.
- B) Maximum 2 remote controllers for 1 group;
*MA/ME remote controllers cannot be present together in 1 group.
*When the PAR-CT01MA series, PAR-FS01MA series, PAR-4"x"MA series, or PAR-3"x"MA series ("x" represents 0 or later) is connected to a group, no other MA remote controllers can be connected to the same group.
- C) 1 LOSSNAY unit can interlock maximum 16 Indoor units; 1 Indoor unit can interlock only 1 LOSSNAY unit.
- D) Maximum 3 System controllers are connectable when connecting to TB3 of the Outdoor/Heat source unit.
- E) A maximum of 6 system controllers are connectable to TB3 and TB7 of Outdoor/Heat source unit.
- F) 4 System controllers or more are connectable when connecting to TB7 of the Outdoor/Heat source unit, if the transmission power is supplied by the power supply unit PAC-SC51KUA.
*System controller connected as described in D) would have a risk that the failure of connected Outdoor/Heat source unit would stop power supply to the System controller.

10-3-2. Ensuring proper communication power and the number of connected units for M-NET

In order to ensure proper communication among Outdoor/Heat source unit, Indoor unit, LOSSNAY, OA processing unit GUF-RD(H), and Controllers, the transmission power situation for the M-NET should be observed. In some cases, Transmission booster should be used. Taking the power consumption of Indoor unit as 1, the equivalent power consumption or supply of others are listed at Table 1 and Table 2.

Both the transmission line for centralized controller and indoor-outdoor transmission line must meet the conditions listed below. (Both conditions a) and b) must be met.)

a) [Total equivalent power consumption] ≤ [The equivalent power supply]

b) [Total equivalent number of units (Table 1)] ≤ [40]

Table 1 The equivalent power consumption and the equivalent number of units

Category	Model	The equivalent power consumption	The equivalent number of units
CITY MULTI indoor unit OA unit CITY MULTI connection kit Air handling unit controller	Except for the models indicated by *2 PEFY-AF2500, 3000, 4000, 5000, 6000MH GUF-50, 100 PAC-LV11M-J PAC-AH125, 140, 250, 500M-J	1	1
CITY MULTI indoor unit *2	PDFY-P100VM-E-RE	2	2
BC controller	CMB-P/M	2	1
HBC controller	CMB-WP	2	1
	CMB-WM-V-AA/AB	2	2
	CMB-WM-F-AA CMB-WM-V-BB		
Hydro unit	CMH-WM-V-A	2	1
PWFY *1	P100VM-E-BU	6	1
	P200VM-E1-AU P200VM-E2-AU	5	1
	(E)P100VM-E1-AU (E)P100VM-E2-AU P140VM-E1-AU P140VM-E2-AU	1	1
	P250, 300, 500, 600VM-E(-F)	1	1
	P750, 900VM-E(-F)	2	2
PFAV	P200, 250, 400, 500YM-A	1	1
PFV, PEV	PAR-CT01MA PAR-FS01MA PAR-21, 31, 32, 33, 40, 41MA PAC-YT52CRA PAR-FA32MA LGH PZ-60, 61, 62DR PZ-43SMF-E	0	0
MA remote controller/ LOSSNAY	PAR-U02MEDA	0.5	1
	PZ-52SF	0.25	1
ME remote controller	AE-200E/AE-50E/EW-50E LM-AP	0	0
	AG-150A EB-50GU-J PAC-IF01AHC-J	0.5	1
	AT-50B	1.5	5
	PAC-YG60MCA PAC-YG66DCA PAC-YG63MCA	0.25	1
	PAC-YT40ANRA	1	1
ON/OFF controller	CMS-MNG-E	2	1
MN converter	TB7 power consumption	0	0
Outdoor/Heat source unit	MAC-333IF-E	0	0
System control interface	PAC-SF83MA-E		
A-M converter			

*1 PWFY cannot be connected to PUMY model.

Table 2 The equivalent power supply

Category	Model	The equivalent power supply		
Transmission Booster	PAC-SF46EPA-G	25 *1		
Power supply unit	PAC-SC51KUA	5		
Expansion controller	PAC-YG50ECA	6		
BM ADAPTER	BAC-HD150	6		
System controller	AE-200E/AE-50E	0.75		
	EW-50E	1.5		
	LM-AP	0		
Outdoor/Heat source unit		TB3 and TB7 total	TB7 only	TB3 only
	Outdoor unit except S-Series and TKA *2	32 *1	6	32 *1-equivalent power supplied to TB7
	S-Series outdoor unit	12 *1	0	12 *1
	S-Series outdoor unit (YBM)	32 *1	0	32 *1
	TKA outdoor unit	32 *1	- *3	32 *1

*1 When one or more indoor units listed below is connected, subtract 3 from the equivalent power supply.

Table 3

Category	Model
Indoor unit	Sized P200/P250
	PEFY-AF4000/5000/6000MH, PFFY-P400/500YM-E, PFFY-P400/500YMH-C
	PFFY-P300/600YM-E-F, PFFY-P300/600YM-C-F, PDFY-P100VM-E-RE
Air handling unit controller	PAC-AH250/500M-J
PFAV	PFAV-P500/600/750/900VM-E(-F)
PFV	PFV-P400/500YM-A
PEV	PEV-P400/500YM-A

*2 If PAC-SC51KUA is used to supply power at TB7 side, no power supply need from Outdoor/Heat source unit at TB7, Connector TB3 itself will therefore have 32.

*3 Do not supply power to TB7 from TKA outdoor units.

Use PAC-SC51KUA or PAC-SF46EPA-G when connecting an M-NET device to TB7.

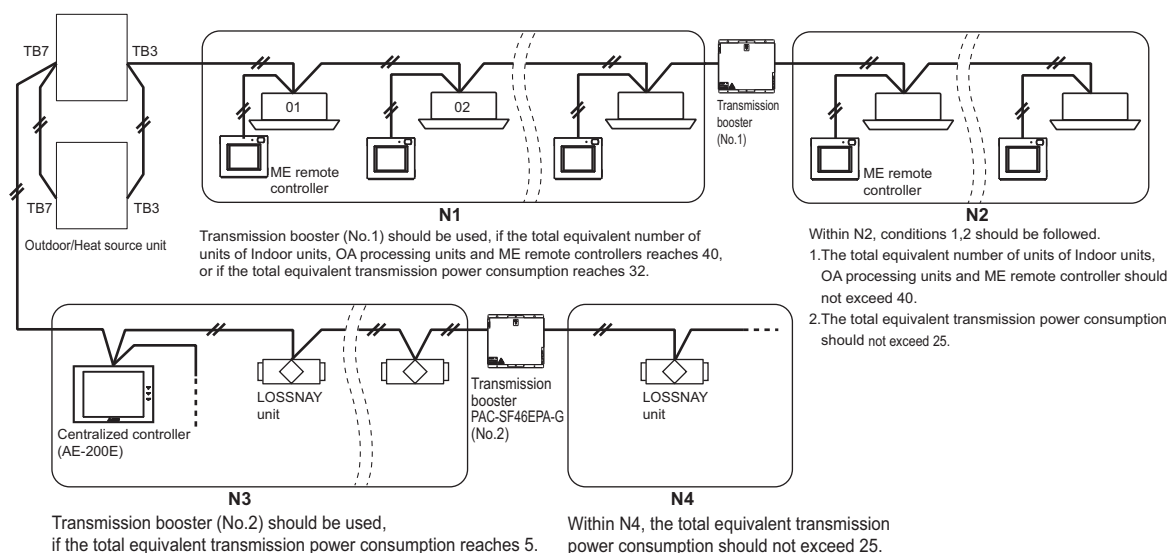
With the equivalent power consumption values and the equivalent number of units in Table 1 and Table 2, PAC-SF46EPA-G can be designed into the air-conditioner system to ensure proper system communication according to (A), (B), (C).

- (A) Firstly, count from TB3 at TB3 side the total equivalent number of units of Indoor units, OA processing units, ME remote controller, and System controllers. If the total equivalent number of units reaches 40, a PAC-SF46EPA-G should be set.
- (B) Secondly, count from TB7 side to TB3 side the total transmission power consumption. If the total equivalent power supply reaches 32, a PAC-SF46EPA-G should be set. Yet, if a PAC-SC51KUA or another controller with a built-in power supply, such as PAC-YG50ECA, is used to supply power at TB7 side, count from TB3 side only.
- (C) Thirdly, count from TB7 at TB7 side the total transmission power consumption. If the total equivalent power supply for only TB7 reaches 6, a PAC-SF46EPA-G should be set. Also, count from TB7 at TB7 side the total equivalent number of units of System controllers, and so on. If the total equivalent number of units reaches 40, a PAC-SF46EPA-G should be set.

* The equivalent power supply of S-Series outdoor unit is 12.

* When one or more indoor units listed in Table 3 is connected, subtract 3 from the equivalent power supply.

■ System example



10-3-3. Ensuring proper power supply to System controller

The power to System controller (excluding AE-200E, AE-50E, EW-50E, BAC-HD150, LM-AP) is supplied via M-NET transmission line. M-NET transmission line at TB7 side is called Centralized control transmission line while one at TB3 side is called Indoor-Outdoor/Heat source transmission line. There are 3 ways to supply power to the System controller.

A) Connecting to TB3 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.

B) Connecting to TB7 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.

(Not applicable to the PUMY model)

C) Connecting to TB7 of the Outdoor/Heat source unit but receiving power from power supply unit PAC-SC51KUA.

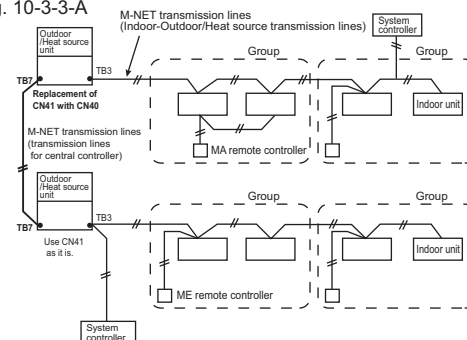
* System controllers (AE-200E, AE-50E, EW-50E, BAC-HD150, LM-AP) have a built-in function to supply power to the M-NET transmission lines, so no power needs to be supplied to the M-NET transmission lines from the Outdoor/Heat source units or from PAC-SC51KUA.

10-3-3-A. When connecting to TB3 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit.

Maximum 3 System controllers can be connected to TB3.

If there is more than 1 Outdoor/Heat source unit, it is necessary to replace power supply switch connector CN41 with CN40 on one Outdoor/Heat source unit.

Fig. 10-3-3-A

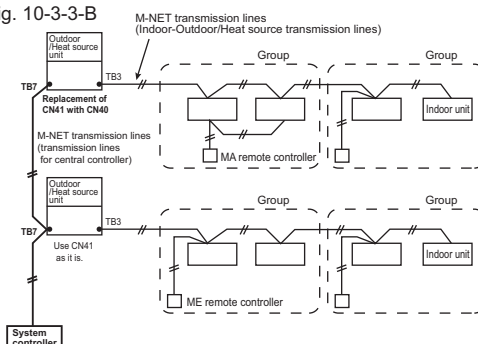


10-3-3-B. When connecting to TB7 of the Outdoor/Heat source unit and receiving power from the Outdoor/Heat source unit. (Not applicable to the PUMY model)

A maximum of 6 system controller are connectable to TB3 and TB7 of Outdoor/Heat source unit. (Not applicable to the PUMY model)

It is necessary to replace power supply switch connector CN41 with CN40 on one Outdoor/Heat source unit.

Fig. 10-3-3-B



10-3-3-C. When connecting to TB7 of the Outdoor/Heat source unit but receiving power from PAC-SC51KUA.

When using PAC-SC51KUA to supply transmission power, the power supply connector CN41 on the Outdoor/Heat source units should be kept as it is. It is also a factory setting.

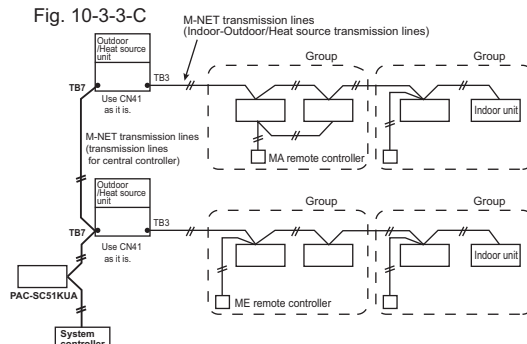
1 PAC-SC51KUA supports maximum 1 AG-150A or

1 EB-50GU-J unit due to the limited power 24VDC at its TB3.

However, 1 PAC-SC51KUA supplies transmission power at its TB2 equal to 5 Indoor units, which is referable at Table 2.

If System controller, ON/OFF controller connected to TB7 consume transmission power more than 5 (Indoor units), Transmission booster PAC-SF46EPA-G is needed. PAC-SF46EPA-G supplies transmission power equal to 25 Indoor units.

Fig. 10-3-3-C



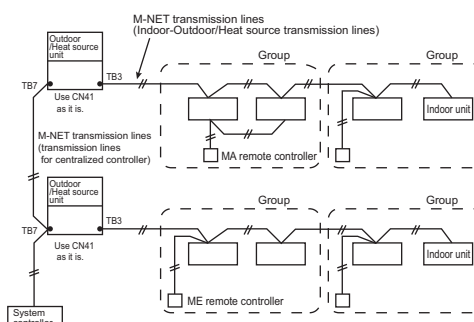
⚠ CAUTION

■ How to connect system controllers (AE-200E, AE-50E, EW-50E, BAC-HD150, LM-AP) to a given system
System controllers (AE-200E, AE-50E, EW-50E, BAC-HD150, LM-AP) have a built-in function to supply power to the M-NET transmission lines, so no power needs to be supplied to the M-NET transmission lines from the Outdoor/Heat source units or from PAC-SC51KUA.

Leave the power supply connector on the Outdoor/Heat source unit connected to CN41 as it is.

Refer to 10-3-2 for information about the power-supply capacity of each system controller (EW-50E, BAC-HD150, LM-AP) to the low-level system controllers.

Fig. 10-3-3-D



10-3-4. Power supply to LM-AP

1-phase 220-240VAC power supply is needed.

The power supply unit PAC-SC51KUA is not necessary when connecting only the LM-AP. Yet, make sure to change the power supply changeover connector CN41 to CN40 on the LM-AP.

10-3-5. Power supply to expansion controller

1-phase 100-240VAC power supply is needed.

The power supply unit PAC-SC51KUA is not necessary.

The expansion controller supplies power through TB3, which equals 6 indoor units. (refer to Table 2)

10-3-6. Power supply to BM ADAPTER

1-phase 100-240VAC power supply is needed.

The power supply unit PAC-SC51KUA is not necessary when only BM ADAPTER is connected.

Yet, make sure to move the power jumper from CN41 to CN40 on the BM ADAPTER.

10-3-7. Power supply to AE-200E/AE-50E/EW-50E

1-phase 100-240VAC power supply is needed.

The power supply unit PAC-SC51KUA is not necessary when connecting only the AE-200E/AE-50E/EW-50E.

10-4. Address setting

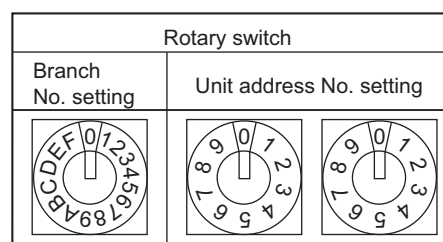
10-4-1. Switch operation

In order to constitute CITY MULTI in a complete system, switch operation for setting the unit address No. and connection No. is required.

① Address No. of outdoor unit, indoor unit and remote controller.

The address No. is set at the address setting board.

In the case of R2 system, it is necessary to set the same No. at the branch No. switch of indoor unit as that of the BC controller connected. (When connecting two or more branches, use the lowest branch No.)



② Caution for switch operations

- Be sure to shut off power source before switch setting. If operated with power source on, switch can not operate properly.
- No units with identical unit address shall exist in one whole air conditioner system. If set erroneously, the system can not operate.

③ MA remote controller

- When connecting only one remote controller to one group, it is always the main remote controller. When connecting two remote controllers to one group, set one remote controller as the main remote controller and the other as the sub remote controller.
- The factory setting is "Main".

PAR-4"x"MAA ("x" represents 0 or later), PAR-CT01MA, PAR-FS01MA

The MA remote controller does not have the switches listed above.

Refer to the installation manual for the function setting.

PAC-YT52CRA

Setting the dip switches

There are switches on the back of the top case. Remote controller Main/Sub and other function settings are performed using these switches. Ordinarily, only change the Main/Sub setting of SW1.

(The factory settings are ON for SW1, 2, and 3 and OFF for SW4.)

SW No.	SW contents Main	ON	OFF	Comment
1	Remote controller Main/Sub setting	Main	Sub	Set one of the two remote controllers at one group to "ON".
2	Temperature display units setting	Celsius	Fahrenheit	When the temperature is displayed in [Fahrenheit], set to "OFF".
3	Cooling/heating display in AUTO mode	Yes	No	When you do not want to display "Cooling" and "Heating" in the AUTO mode, set to "OFF".
4	Indoor temperature display	Yes	No	When you want to display the indoor temperature, set to "ON".

10-4-2. Rule of setting address

Unit		Address setting	Example		Note														
Indoor unit		01 ~ 50			Use the most recent address within the same group of indoor units. Make the indoor units address connected to the BC controller (Sub) larger than the indoor units address connected to the BC controller (Main). If applicable, set the sub BC controllers in an PURY/PQRY system in the following order: (1) Indoor unit to be connected to the BC controller (Main) (2) Indoor unit to be connected to the BC controller (No.1 Sub) (3) Indoor unit to be connected to the BC controller (No.2 Sub) Set the address so that (1)<(2)<(3)														
Branch Box		01 ~ 50			Use a number within the range 01~ 50, but it should not make the highest address of connected A-IC exceed 50. • Specify whether indoor units are connected to each port (A, B, C, D, and E). <table border="1"><tr><td>SW1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>(6)</td></tr><tr><td>Port</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>not use</td></tr></table> indoor units are connected ON indoor units are not connected OFF	SW1	1	2	3	4	5	(6)	Port	A	B	C	D	E	not use
SW1	1	2	3	4	5	(6)													
Port	A	B	C	D	E	not use													
Outdoor unit		51 ~ 99, 100			The smallest address of indoor unit in same refrigerant system + 50 * The address automatically becomes "100" if it is set as "01~ 50"														
BC controller (Main)		52 ~ 99, 100			The address of outdoor unit + 1 * Please reset another address between 51 and 99 when two addresses overlap. * The address automatically becomes "100" if it is set as "01~ 50"														
BC controller (Sub)		53 ~ 99, 100			Lowest address within the indoor units connected to the BC controller (Sub) plus 50.														
Local remote controller	ME Remote controller (Main)	101 ~ 150	1 Fixed		The smallest address of indoor unit in the group + 100 * The place of "100" is fixed to "1"														
	ME Remote controller (Sub)	151 ~ 199, 200	1 Fixed		The address of main remote controller + 50 * The address automatically becomes "200" if it is set as "00"														
System controller	ON/OFF remote controller	201 ~ 250			The smallest group No. to be managed + 200 * The smallest group No. to be managed is changeable.														
	AE-200E/AE-50E AG-150A EB-50GU-J EW-50E AT-50B	000, 201 ~ 250	0 100	0 10	0 1	* AT-50B cannot be set to "000".													
	PAC-YG50ECA	000, 201 ~ 250	0 100	0 10	0 1	* Settings are made on the initial screen of AG-150A.													
	BAC-HD150	000, 201 ~ 250	0 100	0 10	0 1	* Settings are made with setting tool of BM ADAPTER.													
	LMAP04-E	201 ~ 250	2 Fixed																
PI, AI, DIDO	PAC-YG60MCA	01 ~ 50																	
	PAC-YG63MCA	01 ~ 50																	
	PAC-YG66DCA	01 ~ 50																	
LOSSNAY, OA processing unit		01 ~ 50			After setting the addresses of all the indoor units, assign an arbitrary address.														
PAC-IF01AHC		201 ~ 250	2 Fixed																

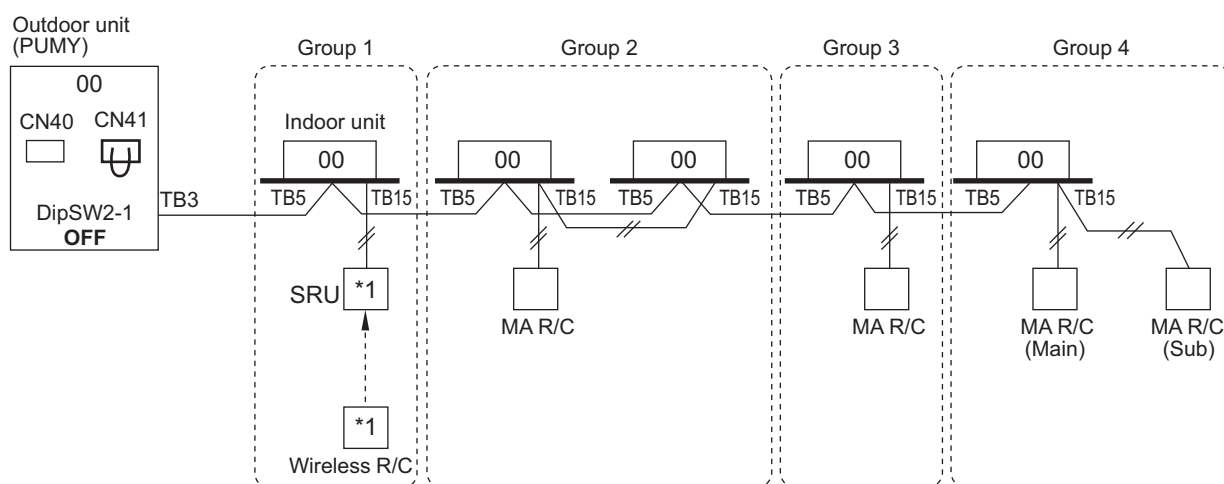
10-4-3. System example

Factory setting

Original switch setting of the outdoors, indoors, controllers, LM-AP and BM ADAPTER at shipment is as follows.

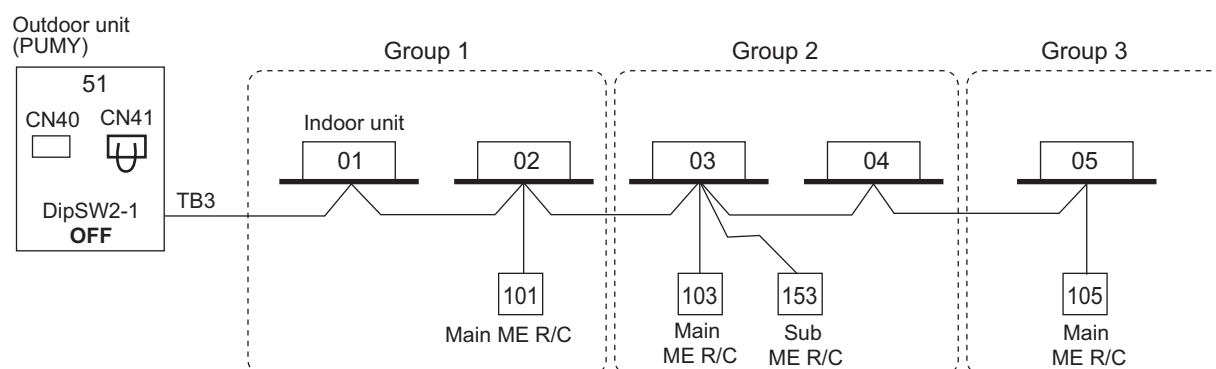
- Outdoor unit : Address: 00, CN41: ON (Jumper), DipSW2-1: OFF
- Indoor unit : Address: 00
- ME Remote controller : Address: 101
- LM-AP : Address: 247, CN41: ON (Jumper), DipSW1-2: OFF
- BM ADAPTER : Address: 000, CN41: ON (Jumper)
- AE-200E/AE-50E/EW-50E : Address: 000, CN21: ON (Jumper)

10-4-3-1. Basic (No address setting)

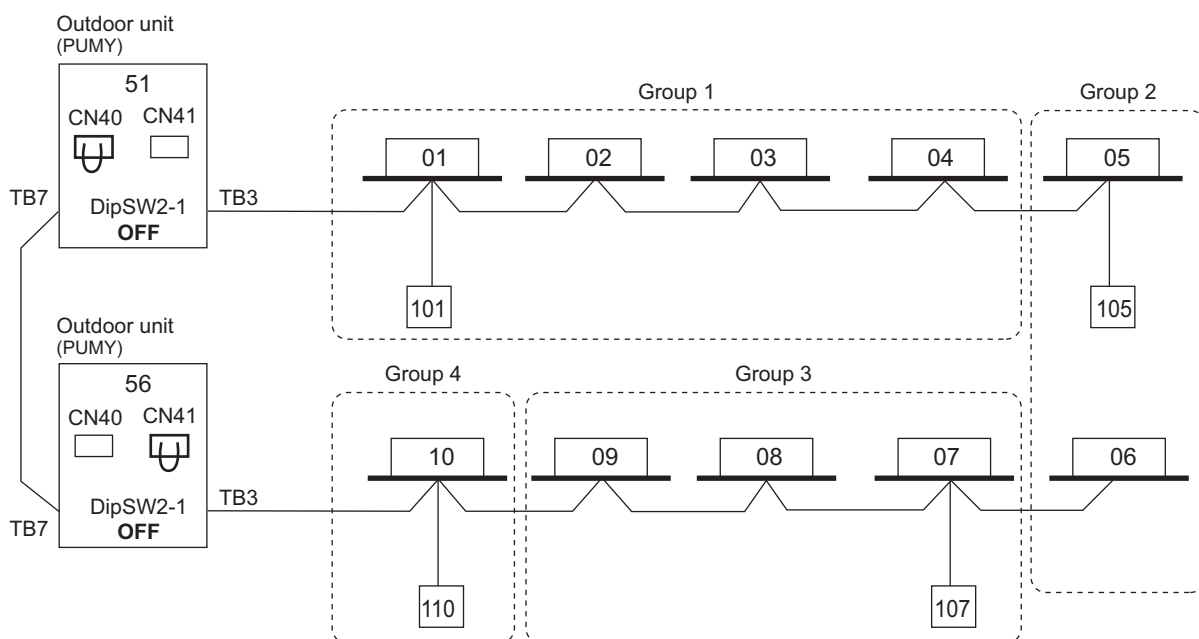


*1 For wireless R/C and Signal receiver unit(SBU), channel 1, 2 and 3 are selectable and should be set same channel.

10-4-3-2. Basic, Sub/main ME remote controller



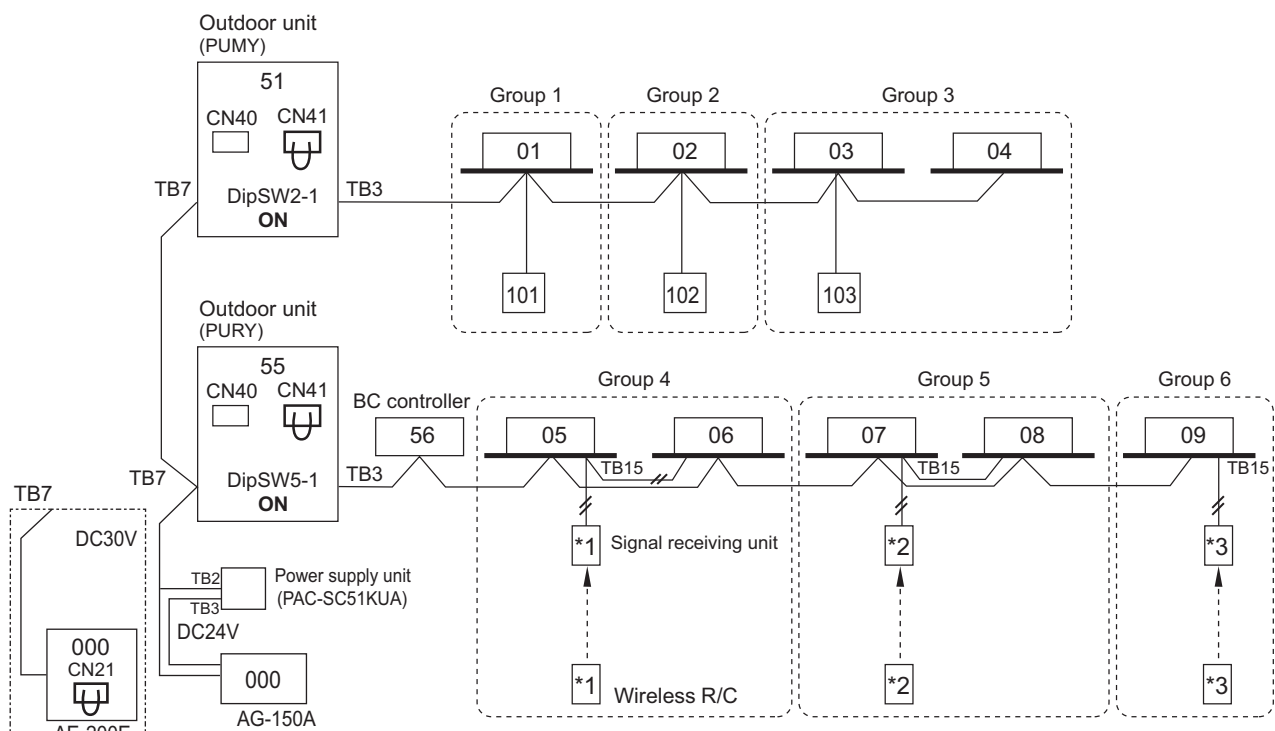
10-4-3-3. Grouping in different refrigerant system



NOTE

- It is necessary to change the connector to CN40 on the outdoor unit (Heat source unit) control board (only one outdoor unit (Heat source unit)) when the group is set between other refrigerant systems.
- It is necessary to set on the remote controller by manual when group sets on the different refrigerant system. Please refer to remote controller installation manual.

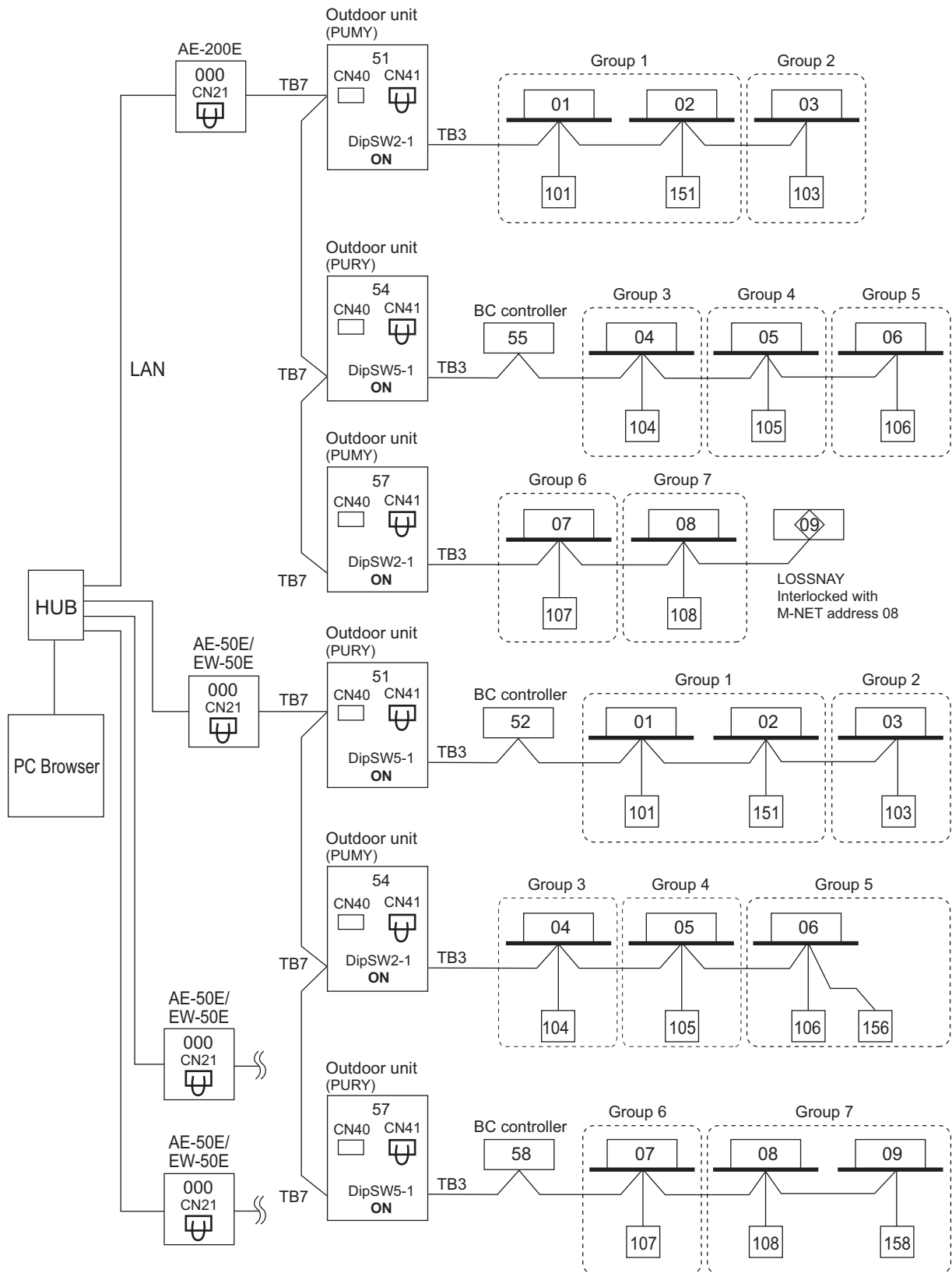
10-4-3-4. 2 Outdoor unit, AG-150A, AE-200E, MA



* For wireless R/C and Signal receiver unit(SBU), channel 1, 2 and 3 are selectable and should be set same channel.

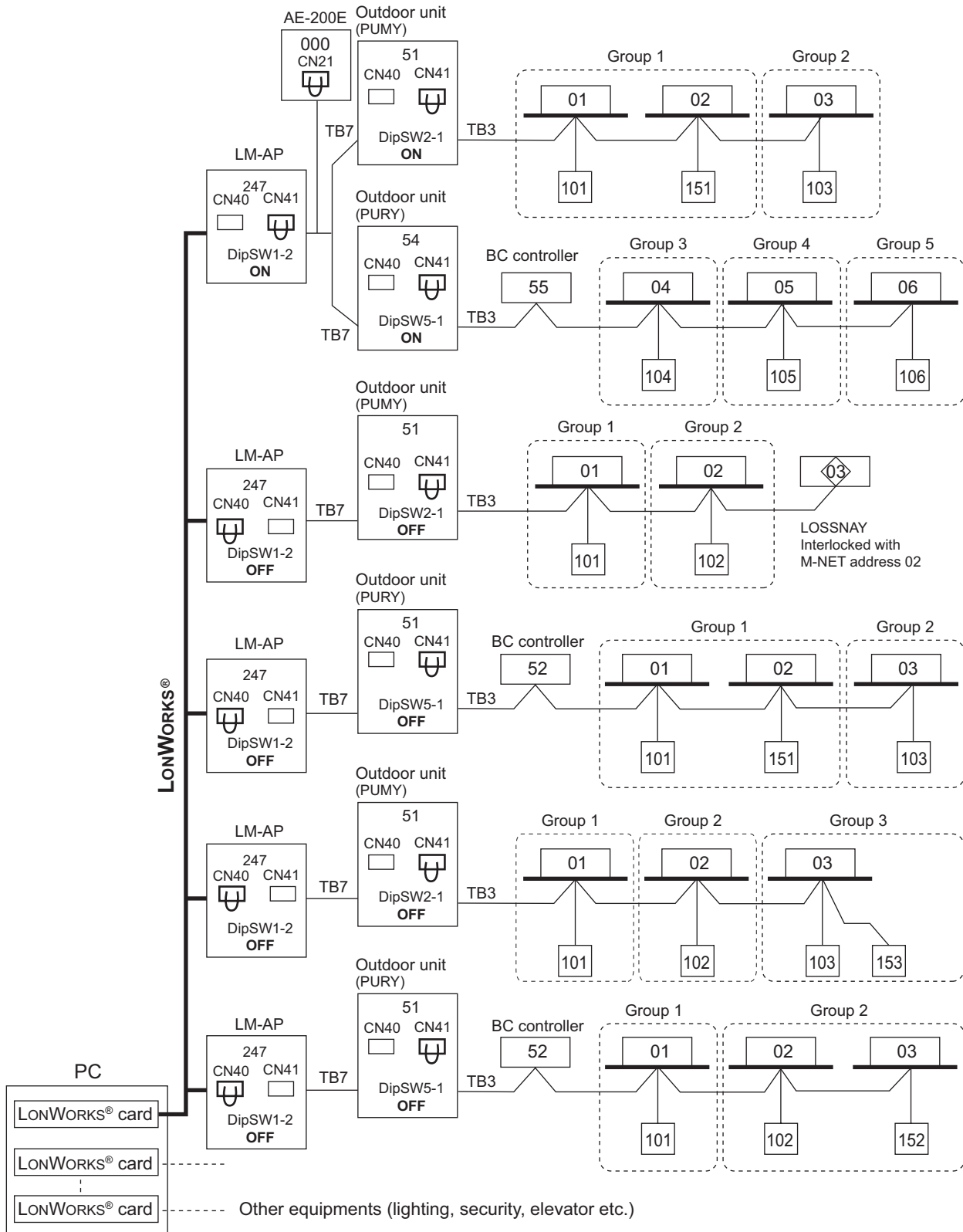
10-4-3-5. AE-200E + AE-50E/EW-50E

AE-200E can control max. 200 indoor units/via AE-50E/EW-50E.



PUMY-SM-VKM, YKM

10-4-3-6. LM-AP



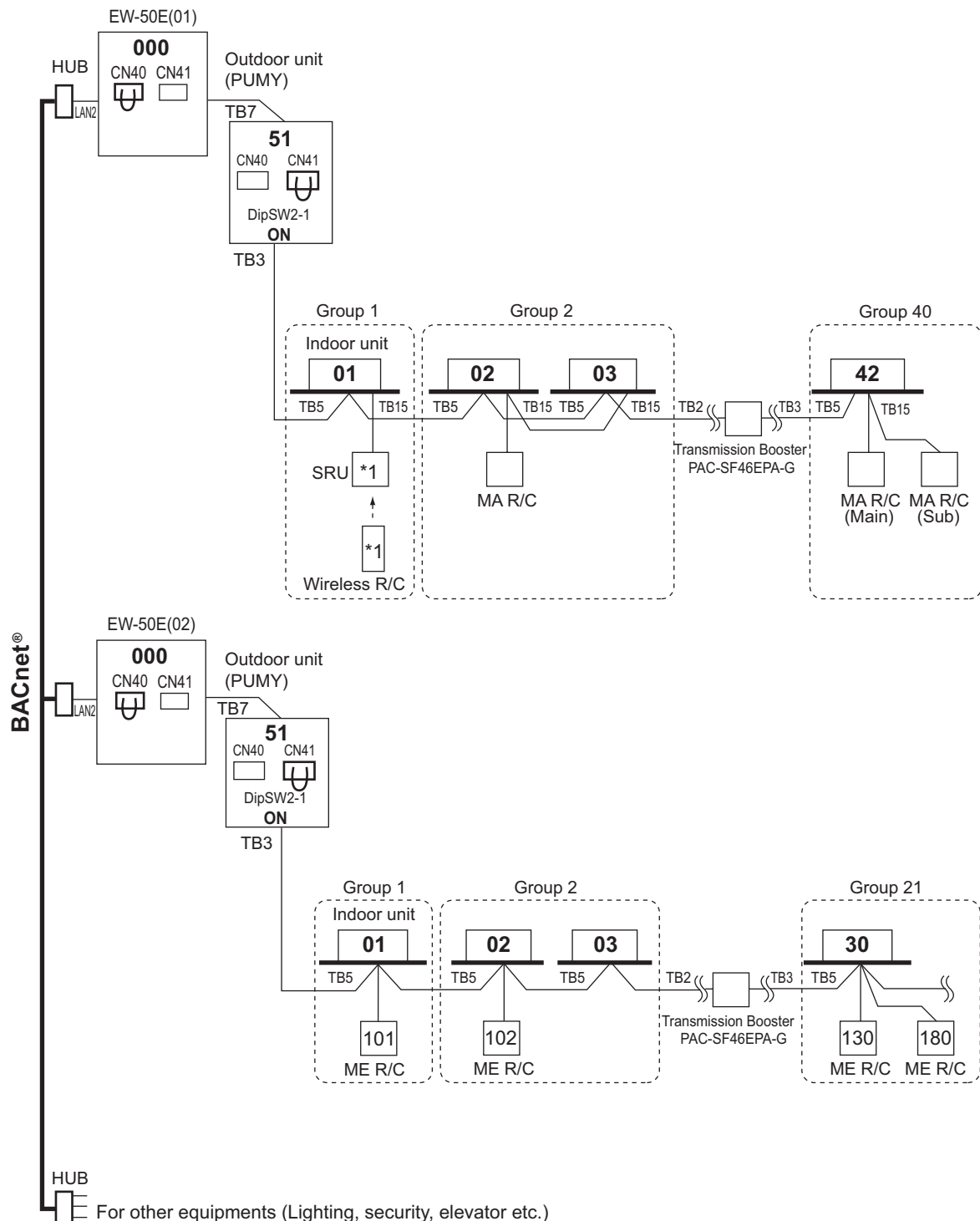
NOTE

- LM-AP can control 50 indoor units.
- It is necessary to turn on the DipSW1-2 on the LM-AP control board and the DipSW2-1 on the outdoor unit (heat source unit) control board with centralized controller (Power supply unit).
- It is necessary to change the connector to CN40 on the LM-AP control board without centralized controllers (Power supply unit).

10-4-3-7. BACnet®

EW-50E (AE-200E) can control up to 50 units/groups (including LOSSNAY).

*To use the BACnet® function on EW-50E (AE-200E), BACnet® license registration is required.



*1 For Wireless R/C and Signal receiver unit (SRU), channel 1, 2 and 3 are selectable and should be set to same channel.

*2 When the PAR-CT01MA series, PAR-FS01MA series, PAR-4"x"MA series, or PAR-3"x"MA series ("x" represents 0 or later) is connected to a group, no other MA remote controllers can be connected to the same group.

11-1. R32 Piping material

Refrigerant pipe for CITY MULTI shall be made of phosphorus deoxidized copper, and has two types.

A. Type-O: Soft copper pipe (annealed copper pipe), can be easily bent with human's hand.

B. Type-1/2H pipe: Hard copper pipe (Straight pipe), being stronger than Type-O pipe of the same radial thickness.

The maximum operation pressure of R32 air conditioner is 4.30 MPa [623psi]. The refrigerant piping should ensure the safety under the maximum operation pressure. MITSUBISHI ELECTRIC recommends pipe size as Table1, or You shall follow the local industrial standard. Pipes of radial thickness 0.7mm or less shall not be used.

Table 1. Copper pipe size and radial thickness for R32 CITY MULTI.

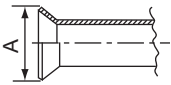
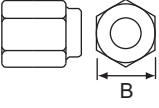
Size (mm)	Size (in.)	Radial thickness (mm)	Radial thickness (mil)	Pipe type
ø6.35	ø1/4"	0.8	[32]	Type-O
ø9.52	ø3/8"	0.8	[32]	Type-O
ø12.7	ø1/2"	0.8	[32]	Type-O
ø15.88	ø5/8"	1.0	[40]	Type-O
ø19.05	ø3/4"	1.2	[48]	Type-O
ø19.05	ø3/4"	1.0	[40]	Type-1/2H or H
ø22.2	ø7/8"	1.0	[40]	Type-1/2H or H
ø25.4	ø1"	1.0	[40]	Type-1/2H or H
ø28.58	ø1-1/8"	1.0	[40]	Type-1/2H or H
ø31.75	ø1-1/4"	1.1	[44]	Type-1/2H or H
ø34.93	ø1-3/8"	1.2	[48]	Type-1/2H or H
ø41.28	ø1-5/8"	1.4	[56]	Type-1/2H or H

* For pipe sized ø19.05 (3/4") for R32 air conditioner, choice of pipe type is up to you.

* The figures in the radial thickness column are based on the Japanese standards and provided only as a reference. Use pipes that meet the local standards.

Flare

Due to the relative higher operation pressure of R32 compared to R22, the flare connection should follow dimensions mentioned below so as to achieve enough the air-tightness.

Flare pipe	Pipe size	A (For R32)	(mm[in.])	Flare nut	Pipe size	B (For R32)	(mm[in.])
	ø6.35 [1/4"]	9.1			ø6.35 [1/4"]	17.0	
	ø9.52 [3/8"]	13.2			ø9.52 [3/8"]	22.0	
	ø12.70 [1/2"]	16.6			ø12.70 [1/2"]	26.0	
	ø15.88 [5/8"]	19.7			ø15.88 [5/8"]	29.0	
	ø19.05 [3/4"]	24.0			ø19.05 [3/4"]	36.0	

11-2. Piping Design

11-2-1. Use of the existing refrigerant piping



WARNING

Before operating the compressor, make sure the refrigerant pipes are properly installed.

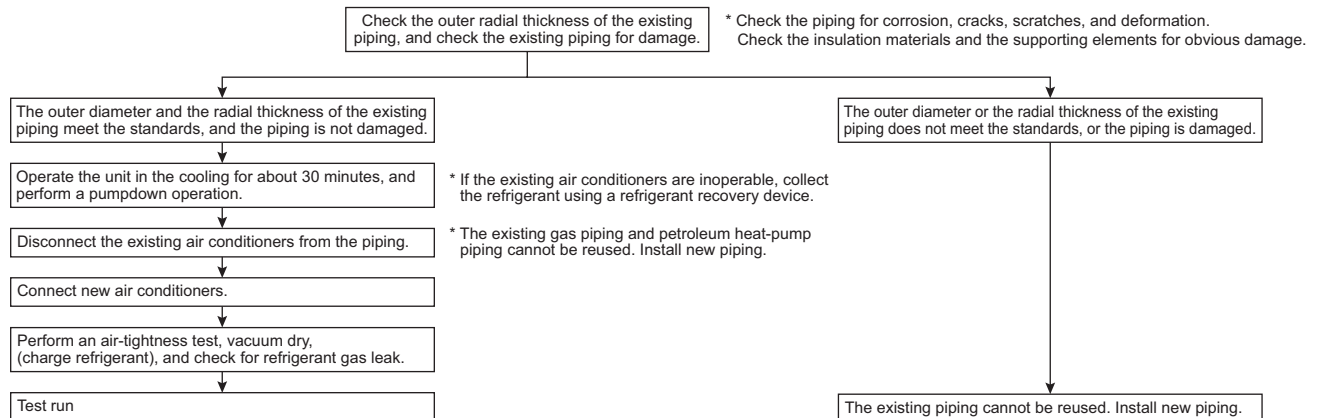
- Operating the compressor without the refrigerant pipes properly being connected and with the stop (ball) valve open, the compressor may suck in air, raising the pressure inside the refrigerant cycle abnormally high and resulting in pipe bursting and personal injury.

- Adequately insulate the liquid and gas refrigerant pipes to keep condensation from dripping.
- Provide additional insulation on the refrigerant pipes as necessary to keep condensation from forming on the insulation surface. (Insulating material: Heat-resistance temperature: 120°C; Thickness: 15 mm or greater)
- * Installation of the unit in high-temperature high-humidity conditions, such as in the ceiling of the top floor, may require additional insulation.
- Insulate refrigerant pipes with heat-resistant polyethylene foam and without leaving any gap between indoor unit and insulating material or between insulating materials. (Exposed pipes may cause condensation and pose burn hazard.)
- Keep the piping length within the limits, and charge the required amount of refrigerant (R410A).
- * Before charging refrigerant, evacuate the extended piping and the indoor units, and charge refrigerant through the stop valve (applicable when the unit is stopped). When charging refrigerant through the check valve on the suction side, use a safety charger to prevent liquid refrigerant from being inhaled (applicable when the unit is operated).
- * When charging refrigerant, record the amount of refrigerant charged in the relevant section of the maintenance manual (attached to the product).

- Determine the reusability of the existing piping, using the flowchart below.**

- If the diameter of the existing piping differs from the standard diameter, check the reusability of the piping and restrictive conditions for reuse.**

Cautionary notes on reusing the existing piping



Connecting non-standard diameter pipes

- The following restrictions apply when using pipes with a diameter different from the standard recommended size.

Usability of pipes with non-standard diameters

Main pipe size

	Outside diameter(mm)	Radial thickness	SM112	SM125	SM140
Gas pipe	ø12.7	t 0.8	NA	NA	NA
	ø15.88	t 1.0	A	A	A
	ø19.05	t 1.0	C	C	C
	ø22.2	t 1.0	NA	NA	NA
Liquid pipe	ø28.58 or greater	t 1.0 or greater	NA	NA	NA
	ø9.52	t 0.8	A	A	A
	ø12.7	t 0.8	D	D	D
	ø15.88	t 1.0	D	D	D
	ø19.05 or greater	t 1.0 or greater	NA	NA	NA

A: Standard piping

B: Usable (with no loss of performance)

C: Usable (with loss of performance), Set the SW6-1 from OFF to ON.

D: Usable (Restrictions on refrigerant charge apply.)

NA: Unusable

Size of the piping after branching and up to indoor units

	Outside diameter(mm)	Radial thickness	P10	P15	P20	P25	P32	P40	P50	P63	P71	P80	P100	P125	P140
Gas pipe	ø12.7	t 0.8	A	A	A	A	A	A	A	C	C	C	C	C	C
	ø15.88	t 1.0	NA	NA	NA	NA	NA	B	B	A	A	A	A	A	A
	ø19.05	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	B	B	B	B	B
	ø22.2	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø25.4	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liquid pipe	ø28.58	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø6.35	t 0.8	A	A	A	A	A	A	A	A	15 m or less	NA	NA	NA	NA
	ø9.52	t 0.8	D	D	D	D	D	D	D	D	A	A	A	A	A
	ø12.7	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	D	D	D	D	D
	ø15.88	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	ø19.05	t 1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Pipe diameter and radial thickness

Note: For pipes with a diameter of ø22.2 and up, use 1/2-H or H-material.

Outside diameter (mm)	ø6.35	ø9.52	ø12.7	ø15.88	ø19.05	ø22.2	ø25.4	ø28.58
Radial thickness (mm)	0.8	0.8	0.8	1.0	1.0	1.0	1.0	1.0

Restrictions on extending piping/Amount of refrigerant to be charged (REPLACE units)

When reusing the existing piping, calculate the amount of refrigerant to be charged using the formula below. The existing piping is usable if the result of the calculation below is less than 4.5 kg. If the calculation result is at or above 4.5 kg, use new piping. When reusing the existing piping, charge the amount of refrigerant required for the piping and for the indoor units.

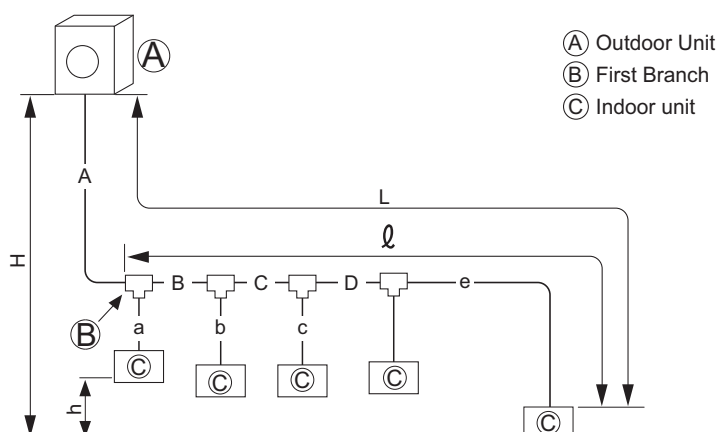
- Calculating the amount of refrigerant to be charged based on pipe size and length

Total length of ø15.88 liquid pipes × 0.20 (m) × 0.20 (kg/m)	+	Total length of ø12.7 liquid pipes × 0.092 (m) × 0.092 (kg/m)	+	Total length of ø9.52 liquid pipes × 0.051 (m) × 0.051 (kg/m)	+	Total length of ø6.35 liquid pipes × 0.019 (m) × 0.019 (kg/m)	=	Amount of additional refrigerant to be charged (REPLACE units) (kg)
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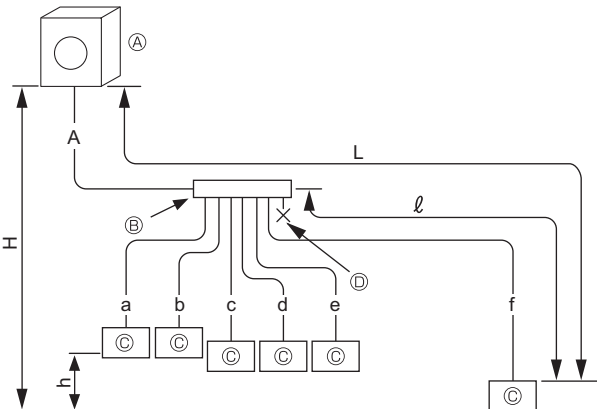
- Calculating the amount of refrigerant to be charged based on indoor unit capacity

Total capacity index of the connected indoor units	Amount of refrigerant to be charged
~ 8.0 kW	1.8 kg
8.1 kW ~ 16.0 kW	1.8 kg
16.1 kW ~	1.8 kg

PUMY-SM-VKM, YKM

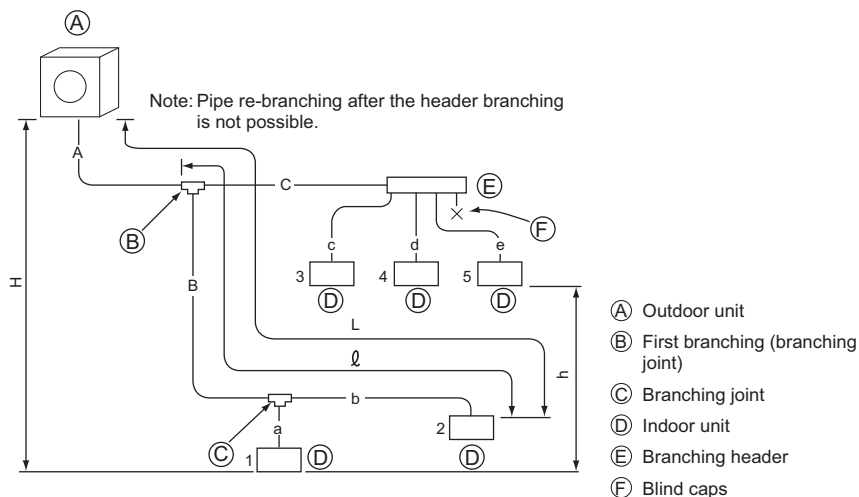


Permissible Length	Total Piping Length	A+B+C+D+a+b+c+d+e ≤ 120 m																														
	Farthest Piping Length (L)	A+B+C+D+e ≤ 70 m																														
	Farthest Piping Length After First Branch (L)	B+C+D+e ≤ 50 m																														
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	H ≤ 50 m (In the case of outdoor unit is set higher than indoor unit) H ≤ 40 m (In the case of outdoor unit is set lower than indoor unit)																														
	High/Low Difference in Indoor/Indoor Section (h)	h ≤ 15 m																														
■ Selecting the Refrigerant Branch Kit		Use an optional branch piping kit (CMY-Y62-G-E).																														
■ Select Each Section of Refrigerant Piping		(1) Section From Outdoor Unit to First Branch (A) (2) Sections From Branch to Indoor Unit (a,b,c,d) (3) Section From Branch to Branch (B,C) Each Section of Piping Select the size from the table to the right. (1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter) <table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td>PUMY-SM112</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>PUMY-SM125</td><td rowspan="2">Gas Pipe</td><td rowspan="2">ø15.88</td></tr><tr><td>PUMY-SM140</td></tr></table> (2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter) <table><tr><th>Model number</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td rowspan="2">- 50</td><td>Liquid Pipe</td><td>R ≤ 30 m ø6.35 R > 30 m ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø12.7</td></tr><tr><td rowspan="2">63 - 140</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø15.88</td></tr></table> Note: • R indicates the piping length after the first branch. (3) Refrigerant Piping Diameter In Section From Branch to Branch <table><tr><th>Liquid Pipe (mm)</th><th>Gas Pipe (mm)</th></tr><tr><td>ø9.52</td><td>ø15.88</td></tr></table>				Model	Piping Diameter (mm)		PUMY-SM112	Liquid Pipe	ø9.52	PUMY-SM125	Gas Pipe	ø15.88	PUMY-SM140	Model number	Piping Diameter (mm)		- 50	Liquid Pipe	R ≤ 30 m ø6.35 R > 30 m ø9.52	Gas Pipe	ø12.7	63 - 140	Liquid Pipe	ø9.52	Gas Pipe	ø15.88	Liquid Pipe (mm)	Gas Pipe (mm)	ø9.52	ø15.88
Model	Piping Diameter (mm)																															
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	Gas Pipe	ø15.88																														
Liquid Pipe (mm)	Gas Pipe (mm)																															
ø9.52	ø15.88																															
■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																														

Header-Branch Method Connection Examples (Connecting to 6 Indoor Units)		 A Outdoor Unit B First Branch C Indoor unit D Cap																								
Permissible Length	Total Piping Length	A+a+b+c+d+e+f ≤ 120 m																								
	Farthest Piping Length (L)	A+ f ≤ 70 m																								
	Farthest Piping Length After First Branch (ℓ)	f ≤ 50 m																								
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	H ≤ 50 m (In the case of outdoor unit is set higher than indoor unit) H ≤ 40 m (In the case of outdoor unit is set lower than indoor unit)																								
	High/Low Difference in Indoor/Indoor Section (h)	h ≤ 15 m																								
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.) <table><tr><td>Branch header (4 branches)</td><td>Branch header (8 branches)</td></tr><tr><td>CMY-Y64-G-E</td><td>CMY-Y68-G-E</td></tr></table>		Branch header (4 branches)	Branch header (8 branches)	CMY-Y64-G-E	CMY-Y68-G-E																			
Branch header (4 branches)	Branch header (8 branches)																									
CMY-Y64-G-E	CMY-Y68-G-E																									
■ Select Each Section of Refrigerant Piping (1) Section From Outdoor Unit to First Branch (A) (2) Sections From Branch to Indoor Unit (a,b,c,d,e,f) Each Section of Piping Select the size from the table to the right.		(1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter) <table><tr><td>Model</td><td colspan="2">Piping Diameter (mm)</td></tr><tr><td>PUMY-SM112</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>PUMY-SM125</td><td rowspan="2">Gas Pipe</td><td rowspan="2">ø15.88</td></tr><tr><td>PUMY-SM140</td></tr></table> (2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter) <table><tr><td>Model number</td><td colspan="2">Piping Diameter (mm)</td></tr><tr><td rowspan="2">- 50</td><td>Liquid Pipe</td><td>R ≤ 30 m ø6.35 R > 30 m ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø12.7</td></tr><tr><td rowspan="2">63 - 140</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø15.88</td></tr></table> Note: • R indicates the piping length after the first branch.		Model	Piping Diameter (mm)		PUMY-SM112	Liquid Pipe	ø9.52	PUMY-SM125	Gas Pipe	ø15.88	PUMY-SM140	Model number	Piping Diameter (mm)		- 50	Liquid Pipe	R ≤ 30 m ø6.35 R > 30 m ø9.52	Gas Pipe	ø12.7	63 - 140	Liquid Pipe	ø9.52	Gas Pipe	ø15.88
Model	Piping Diameter (mm)																									
PUMY-SM112	Liquid Pipe	ø9.52																								
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- 50	Liquid Pipe	R ≤ 30 m ø6.35 R > 30 m ø9.52																								
	Gas Pipe	ø12.7																								
63 - 140	Liquid Pipe	ø9.52																								
	Gas Pipe	ø15.88																								
■ Additional refrigerant charge ■ Calculation of additional refrigerant charge		Refer to “ 11-3. Refrigerant charging calculation ”																								

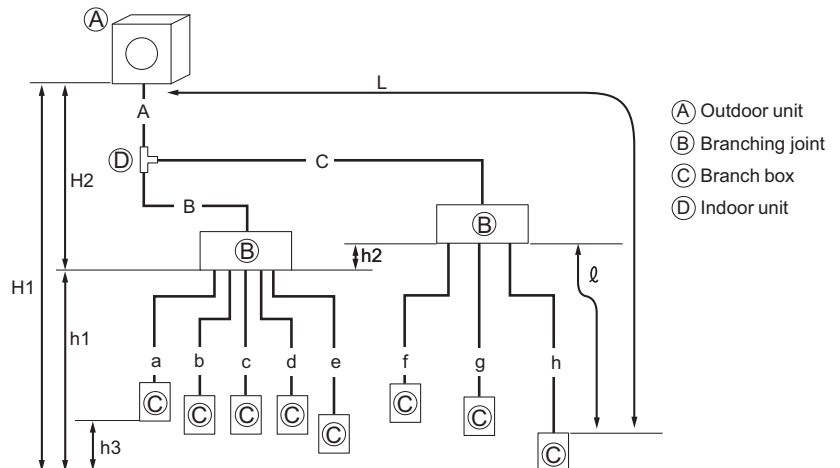
Method of Combined Branching of Lines and Headers

Connection Examples
(Connecting to 5 Indoor Units)



Permissible Length	Total Piping Length	A+B+C+a+b+c+d+e ≤ 120 m																													
	Farthest Piping Length (L)	A+B+b ≤ 70 m																													
	Farthest Piping Length After First Branch (ℓ)	B+b ≤ 50 m																													
Permissible High/Low Difference	High/Low Difference in Indoor/Outdoor Section (H)	H ≤ 50 m (In the case of outdoor unit is set higher than indoor unit) H ≤ 40 m (In the case of outdoor unit is set lower than indoor unit)																													
	High/Low Difference in Indoor/Indoor Section(h)	h ≤ 15 m																													
■ Selecting the Refrigerant Branch Kit		Please select branching kit, which is sold separately, from the table below. (The kit comprises sets for use with liquid pipes and for use with gas pipes.)																													
		Branch Joint	Branch Header (4 branches)	Branch Header (8 branches)																											
		CMY-Y62-G-E	CMY-Y64-G-E	CMY-Y68-G-E																											
■ Select Each Section of Refrigerant Piping		(1) Section From Outdoor Unit to First Branch (A) (2) Section From Branch to Indoor Unit (a,b,c,d,e) (3) Section From Branch to Branch (B,C) Each Section of Piping (1) Refrigerant Piping Diameter In Section From Outdoor Unit to First Branch (Outdoor Unit Piping Diameter) <table><tr><th>Model</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td>PUMY-SM112</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>PUMY-SM125</td><td rowspan="2">Gas Pipe</td><td rowspan="2">ø15.88</td></tr><tr><td>PUMY-SM140</td></tr></table> (2) Refrigerant Piping Diameter In Section From Branch to Indoor Unit (Indoor Unit Piping Diameter) <table><tr><th>Model number</th><th colspan="2">Piping Diameter (mm)</th></tr><tr><td rowspan="2">- 50</td><td>Liquid Pipe</td><td>R ≤ 30 m ø6.35 R > 30 m ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø12.7</td></tr><tr><td rowspan="2">63 – 140</td><td>Liquid Pipe</td><td>ø9.52</td></tr><tr><td>Gas Pipe</td><td>ø15.88</td></tr></table> (3) Refrigerant Piping Diameter In Section From Branch to Branch <table><tr><th>Liquid Pipe (mm)</th><th>Gas Pipe (mm)</th></tr><tr><td>ø9.52</td><td>ø15.88</td></tr></table> Note: • R indicates the piping length after the first branch.			Model	Piping Diameter (mm)		PUMY-SM112	Liquid Pipe	ø9.52	PUMY-SM125	Gas Pipe	ø15.88	PUMY-SM140	Model number	Piping Diameter (mm)		- 50	Liquid Pipe	R ≤ 30 m ø6.35 R > 30 m ø9.52	Gas Pipe	ø12.7	63 – 140	Liquid Pipe	ø9.52	Gas Pipe	ø15.88	Liquid Pipe (mm)	Gas Pipe (mm)	ø9.52	ø15.88
Model	Piping Diameter (mm)																														
PUMY-SM112	Liquid Pipe	ø9.52																													
PUMY-SM125	Gas Pipe	ø15.88																													
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	Gas Pipe	ø15.88																													
Liquid Pipe (mm)	Gas Pipe (mm)																														
ø9.52	ø15.88																														
■ Additional refrigerant charge		Refer to “11-3. Refrigerant charging calculation”.																													

11-2-3. PUMY-SM112, 125, 140VKM/YKM (WHEN USING BRANCH BOX)

Branch box Method
 Connection Examples
 (Connecting to 8 Indoor Units)


Permissible length (One-way)	Total piping length	$A + B + C + a + b + c + d + e + f + g + h \leq 120 \text{ m}$
	Farthest piping length (L)	$A + C + h \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A + B + C \leq 55 \text{ m}$
	Farthest Branch box from the first joint	$C \leq 50 \text{ m}$
	Farthest piping length after branch box (ℓ)	$\ell \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$a + b + c + d + e + f + g + h \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H1)	$H1, H2 \leq 50 \text{ m}$ (When outdoor unit is set higher than indoor unit)
	Branch box/outdoor unit section (H2)	$H1, H2 \leq 40 \text{ m}$ (When outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 + h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends	When using a branch joint	$ A + B + a , A + B + b , A + B + c , A + B + d , A + B + e , A + C + f , A + C + g , A + C + h \leq 15$
	When not using a branch joint	$ A + a , A + b , A + c , A + d , A + C + e , A + C + f , A + C + g , A + C + h \leq 15$

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box (A, B, C)
 (2) Section From Branch box to Indoor Unit (a to h)
- Each Section of Piping

Select the size from the table to the right.

■ Additional refrigerant charge

(1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box (Outdoor Unit Piping Diameter)

Model number	Piping Diameter (mm)	
PUMY-SM112	Liquid Pipe	ø9.52
PUMY-SM125	Gas Pipe	ø15.88
PUMY-SM140		

(2) Refrigerant Piping Diameter In Section From Branch box to Indoor Unit (Indoor Unit Piping Diameter)

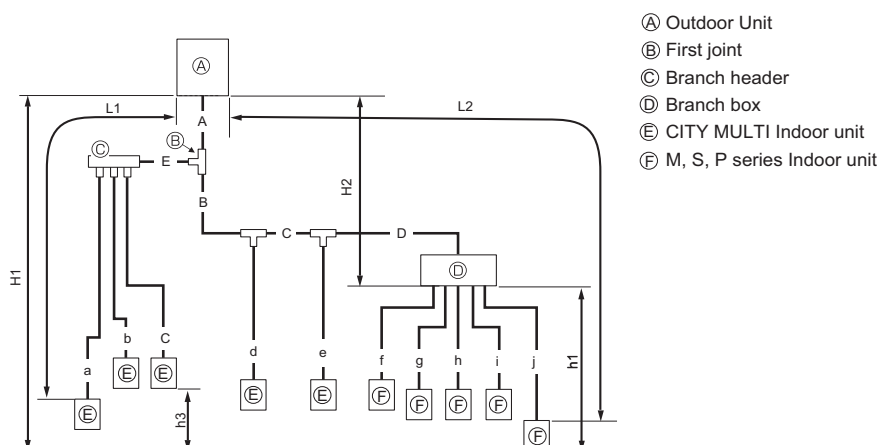
Indoor unit series	Model number	Liquid Pipe	Gas Pipe	(mm)
M series or S series	15 – 42	ø6.35	ø9.52	* If the pipe size of indoor unit is different, use a different-diameter joint.
	50, 60	ø6.35	ø12.7	
	71, 80	ø9.52	ø15.88	
P series	35 – 60	ø6.35	ø12.7	
	71 – 100	ø9.52	ø15.88	

* If the pipe size of indoor unit is different, use a different-diameter joint.

Refer to "11-3. Refrigerant charging calculation".

Mixed Method

Connection Examples
(Connecting to 1 Branch box)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j \leq 120 \text{ m}$
	Farthest piping length (L1)	$A+E+a$ or $A+B+C+e \leq 70 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+D+j \leq 80 \text{ m}$
	Piping length between outdoor unit and branch box	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C+D$ or $B+C+e \leq 50 \text{ m}$
	Farthest piping length after branch box	$j \leq 25 \text{ m}$
	Total piping length between branch boxes and indoor units	$f+g+h+i+j \leq 95 \text{ m}$
Permissible height difference (One-way)	In indoor/outdoor section (H1)	$H1, H2 \leq 50 \text{ m}$ (When outdoor unit is set higher than indoor unit)
	Branch box/outdoor unit section (H2)	$H1, H2 \leq 40 \text{ m}$ (When outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1 \leq 15 \text{ m}$
	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
Number of bends		$ A+E+a , A+E+b , A+E+c , A+B+d , A+B+C+e , A+B+C+D+f , A+B+C+D+g , A+B+C+D+h , A+B+C+D+i , A+B+C+D+j \leq 15$

■ Selecting the Refrigerant Branch Kit

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ Select Each Section of Refrigerant Piping

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
- (2) Sections From Branch box or Branch header to Indoor Unit (a to j)
- Each Section of Piping

Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Out-door Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-SM112	Liquid Pipe	ø9.52
PUMY-SM125	Gas Pipe	ø15.88
PUMY-SM140		

- (2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	Model number	Liquid Pipe	Gas Pipe	(mm)
CITY MULTI	- 50	$R \leq 30 \text{ m}$ ø6.35	ø12.7	
		$R > 30 \text{ m}$ ø9.52		
	63 - 140	ø9.52	ø15.88	
M series or S series	15 - 42	ø6.35	ø9.52	
	50, 60	ø6.35	ø12.7	
	71, 80	ø9.52	ø15.88	
P series	35 - 60	ø6.35	ø12.7	
	71 - 100	ø9.52	ø15.88	

* If the pipe size of indoor unit is different, use a different-diameter joint.

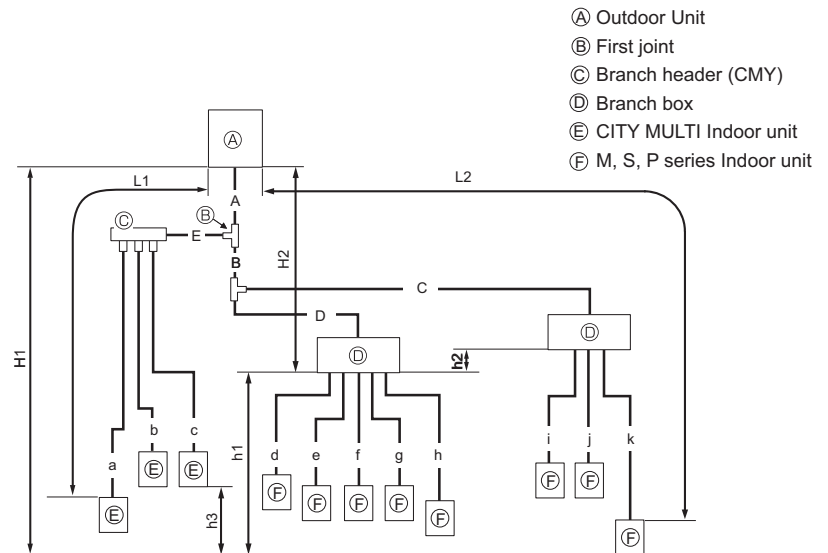
Note:

- R indicates the piping length after the first branch.

■ Additional refrigerant charge

Refer to "11-3. Refrigerant charging calculation".

Mixed Method
Connection Examples
(Connecting to 2 Branch boxes)



Permissible length (One-way)	Total piping length	$A+B+C+D+E+a+b+c+d+e+f+g+h+i+j+k \leq 120 \text{ m}$
	Farthest piping length (L1)	$A+E+a \leq 70 \text{ m}$
	Farthest piping length. Via Branch box (L2)	$A+B+C+k \leq 80 \text{ m}$
	Piping length between outdoor unit and branch boxes	$A+B+C+D \leq 55 \text{ m}$
	Farthest piping length from the first joint	$B+C \text{ or } E+a \leq 50 \text{ m}$
	Farthest piping length after branch box	$k \leq 25 \text{ m}$
	Farthest branch box from outdoor unit	$A+B+C \leq 55 \text{ m}$
Permissible height difference (One-way)	Total piping length between branch boxes and indoor units	$d+e+f+g+h+i+j+k \leq 95 \text{ m}$
	In indoor/outdoor section (H1)	$H1, H2 \leq 50 \text{ m}$ (When outdoor unit is set higher than indoor unit)
	Branch box/outdoor unit section (H2)	$H1, H2 \leq 40 \text{ m}$ (When outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	$h1+h2 \leq 15 \text{ m}$
	In each branch unit (h2)	$h2 \leq 15 \text{ m}$
Number of bends	In each indoor unit (h3)	$h3 \leq 12 \text{ m}$
		$ A + E + a , A + E + b , A + E + c , A + B + D + d , A + B + D + e , A + B + D + f , A + B + D + g , A + B + D + h , A + B + C + i , A + B + C + j , A + B + C + k \leq 15$

■ **Selecting the Refrigerant Branch Kit**

Please select branching kit, which is sold separately, from the table below.
(The kit comprises sets for use with liquid pipes and for use with gas pipes.)

Branch header (4 branches)	Branch header (8 branches)
CMY-Y64-G-E	CMY-Y68-G-E

■ **Select Each Section of Refrigerant Piping**

- (1) Section From Outdoor Unit to Branch box or Branch header (A to E)
(2) Sections From Branch box or Branch header to Indoor Unit (a to k)
- Each Section of Piping
- Select the size from the table to the right.

- (1) Refrigerant Piping Diameter In Section From Outdoor Unit to Branch box or Branch header (Out-door Unit Piping Diameter)

Model	Piping Diameter (mm)	
PUMY-SM112 PUMY-SM125 PUMY-SM140	Liquid Pipe	ø9.52
	Gas Pipe	ø15.88

- (2) Refrigerant Piping Diameter In Section From Branch box or Branch header to Indoor Unit (Indoor Unit Piping Diameter)

Indoor unit series	Model number	Liquid Pipe	Gas Pipe	(mm)
CITY MULTI	- 50	$R \leq 30 \text{ m}$	ø6.35	ø12.7
		$R > 30 \text{ m}$	ø9.52	
M series or S series	63 - 140		ø9.52	ø15.88
	15 - 42		ø6.35	ø9.52
	50, 60		ø6.35	ø12.7
P series	71, 80		ø9.52	ø15.88
	35 - 60		ø6.35	ø12.7
	71 - 100		ø9.52	ø15.88

* If the pipe size of indoor unit is different, use a different-diameter joint.

Note:

- R indicates the piping length after the first branch.

■ **Additional refrigerant charge**

Refer to "11-3. Refrigerant charging calculation".

11-3. Refrigerant charging calculation

Additional refrigerant charge

Refrigerant for the extended piping is not included in the outdoor unit when the unit is shipped from the factory. Therefore, charge each refrigerant piping system with additional refrigerant at the installation site. In addition, in order to carry out service, enter the size and length of each liquid pipe and additional refrigerant charge amounts in the spaces provided on the "Refrigerant amount" plate on the outdoor unit.

Calculation of additional refrigerant charge

- Calculate the additional charge using the liquid pipe size and length of the extended piping and total capacity of connected indoor units.
- Calculate the additional refrigerant charge using the procedure below, and charge with the additional refrigerant.
- For amounts less than 0.1 kg, round up the calculated additional refrigerant charge.
(For example, if the calculated charge is 6.01 kg, round up the charge to 6.1 kg.)

<Additional Charge>

Calculation of refrigerant charge

Additional refrigerant charge for the indoor units	+	Liquid pipe size Total length of ø9.52×0.051	+	Liquid pipe size Total length of ø6.35×0.019	-	Refrigerant amount for outdoor unit
1.8 kg		(m) × 0.051 (kg/m)		(m) × 0.019 (kg/m)		1.4 kg *1
Additional charge amount for piping *2						

*1 Refrigerant of 1.4 kg is already included when the outdoor unit is shipped.

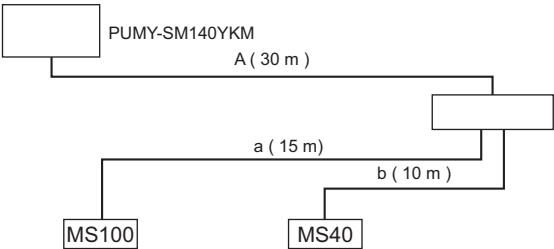
In case of the PKFY model indoor unit is in the refrigerant cycle, refrigerant of 0.6 kg is already included when the outdoor unit is shipped.

*2 If this value is less than 0, the additional charge amount for the piping shall be 0.

Included refrigerant amount when shipped from the factory

Included refrigerant amount
3.0 kg

Example:



<Example>

Outdoor model: SM140

Indoor 1: MS100 (11.2 kW) A: ø9.52 30 m a: ø9.52 15 m
Indoor 2: MS40 (4.5 kW) b: ø6.35 10 m

<Calculation example>

Additional refrigerant charge

$10 \times \frac{19.0}{1000} + 45 \times \frac{50.0}{1000} + 1.8 - 1.4 = 2.9 \text{ kg (rounded up)}$

The total length of each liquid line is as follows:

ø9.52: A + a = 30 + 15 = 45 m

ø6.35: b = 10 m

The total capacity of connected indoor unit is as follows:

11.2 + 4.5 = 15.7

Maximum refrigerant charge

There is a limit to the amount of refrigerant that can be charged into a unit.

Regardless of the amount yielded by the formula above, observe the maximum refrigerant charge in the table below.

Maximum refrigerant charge	Factory charge	kg	3.0
	Charged on site	kg	4.5
	Total for system	kg	7.5

12-1. Requirement on installation site

12-1-1. General caution

- A. Avoid locations exposed to direct sunlight or other sources of heat.
- B. Select a location from which noise emitted by the unit will not inconvenience the neighbors.
- C. Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- D. Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- E. Note that water may drain from the unit during operation.
- F. Select a level location that can bear the weight and vibration of the unit.
- G. Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- H. Avoid locations exposed to oil, steam, or sulfuric gas.
- I. Use the transportation handles of the outdoor unit to transport the unit. If the unit is carried from the bottom, hands or fingers may be pinched.

12-1-2. Installation at windy location.

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows two examples of precautions against strong winds.

- ① Install an optional air guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 12-1-2a)
 - Ⓐ Air guide
- ② Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 12-1-2b)
 - Ⓑ Wind direction

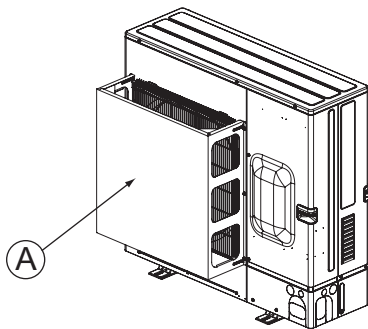


Fig. 12-1-2a

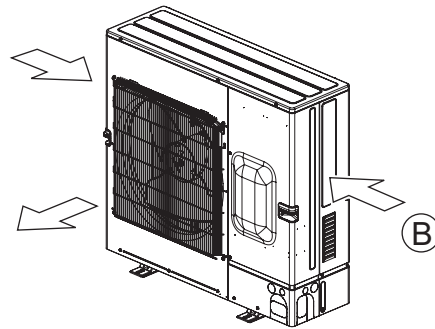
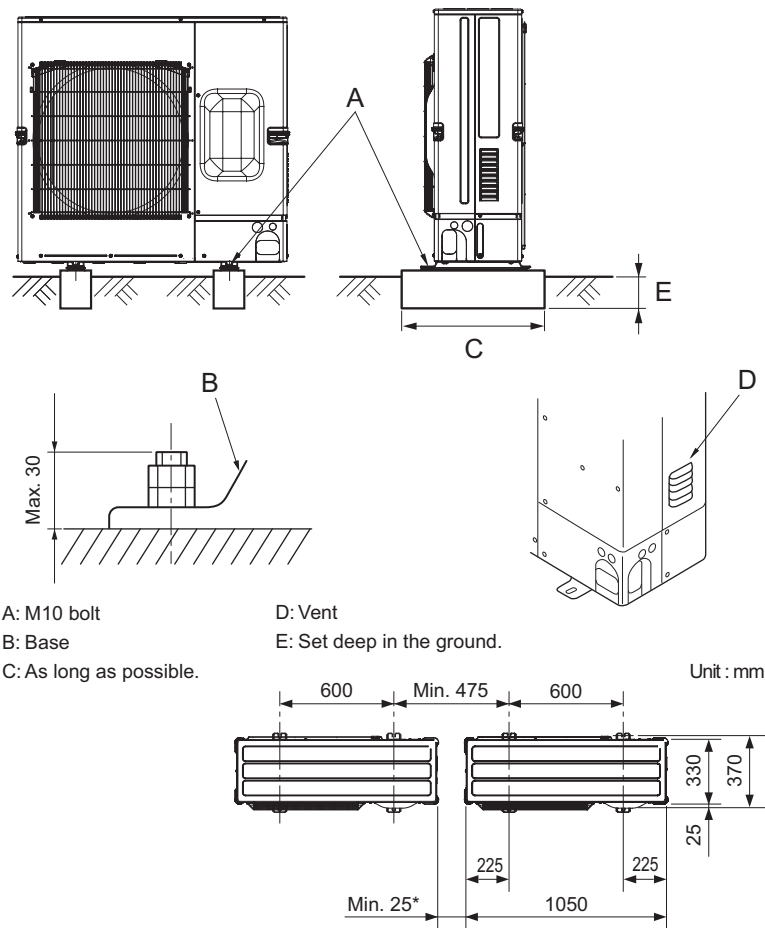


Fig. 12-1-2b

12-1-3. Foundation

- A. Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation.
(see Fig. 12-1-3)
- B. Foundation specifications are as follows.
- | Thickness of concrete | Weight-bearing capacity | Foundation bolt | Bolt length |
|-----------------------|-------------------------|-----------------|-------------|
| 120 mm | 320 kg | M10 | 70 mm |
- C. Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- D. Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

- ⚠ Warning:**
- A. The foundation base should be strong enough to support the outdoor unit, otherwise, it may fall down and cause damage or injuries.
- B. The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds.



* When installing a single outdoor unit, the clearance is 15 mm or more.

Fig. 12-1-3

12-2. Spacing

12-2-1. PUMY-SM112, 125, 140VKM/YKM

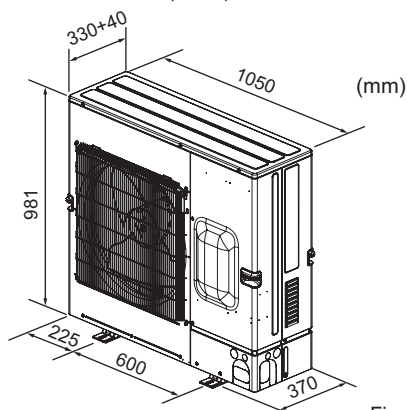


Fig. 12-2-1

12-2-1-1. Spacing individual PUMY-SM-VKM/YKM

Follow Fig. 12-2-2~7 to space individual PUMY-SM-VKM/YKM at the installation site.

mm[in.]

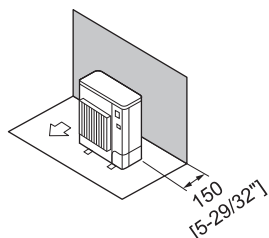


Fig. 12-2-2
Obstacles at rear only

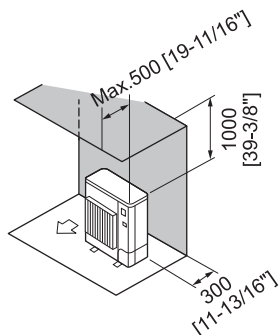


Fig. 12-2-3
Obstacles at rear and above only

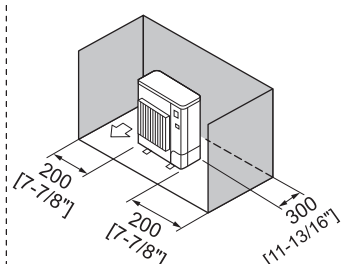
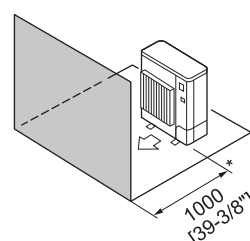
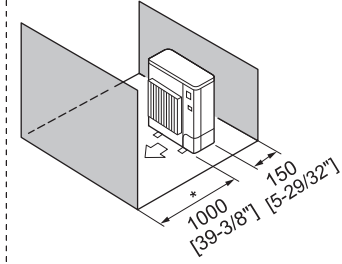


Fig. 12-2-4
Obstacles at rear and sides only



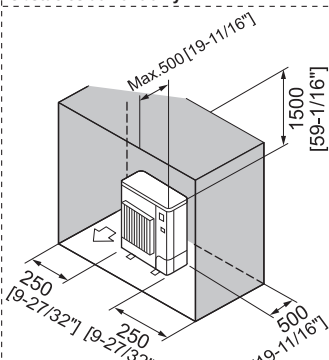
* Using an optional air outlet guide, the clearance ≥ 500 mm [19-11/16\"/>

Fig. 12-2-5
Obstacles at front only



* Using an optional air outlet guide, the clearance ≥ 500 mm [19-11/16\"/>

Fig. 12-2-6
Obstacles at front and rear only



* NO upward airflow outlet guide.

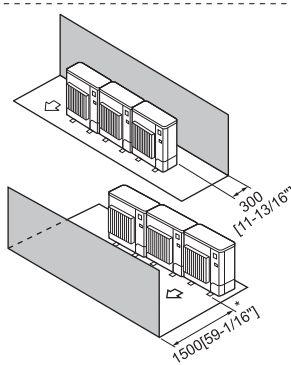
Fig. 12-2-7
Obstacles at rear, sides and above only

12-2-1-2. Spacing grouped PUMY-SM-VKM/YKM

Follow Fig. 12-2-8~13 to space grouped PUMY-SM-VKM/YKM at the installation site.

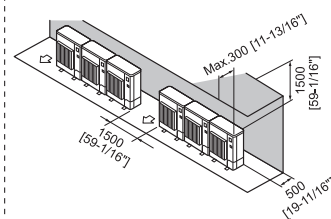
Leave 25 mm space or more between PUMY-SM-VKM/YKM units.

mm[in.]



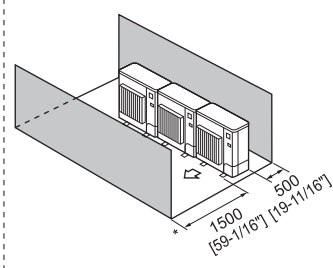
* When using an optional air outlet guide, the clearance is 1000 mm [39-3/8\"/>

Fig. 12-2-8
Obstacles at rear or front only



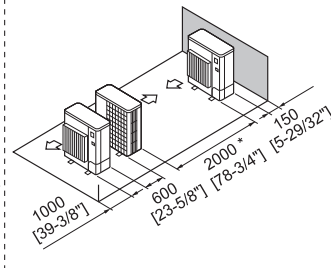
* In case of side-by-side installation, ≤ 3 units;
* Do not install the optional air outlet guides for upward airflow.

Fig. 12-2-9
Obstacles at rear and above only



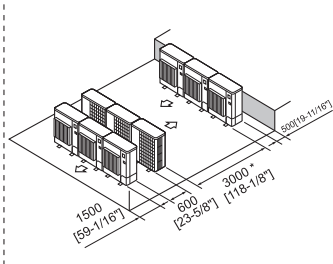
* Using an optional air outlet guide, the clearance ≥ 1000 mm [39-3/8\"/>

Fig. 12-2-10
Obstacles at front and rear only



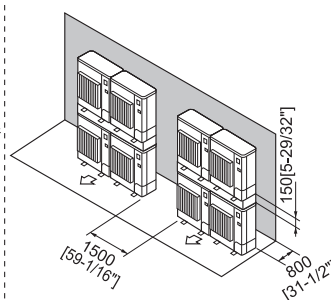
* Using an optional air outlet guide, the clearance ≥ 1000 mm [39-3/8\"/>

Fig. 12-2-11
Parallel individuals arrangement



* Using an optional air outlet guide for upward airflow, the clearance ≥ 1500 mm [59-1/16\"/>

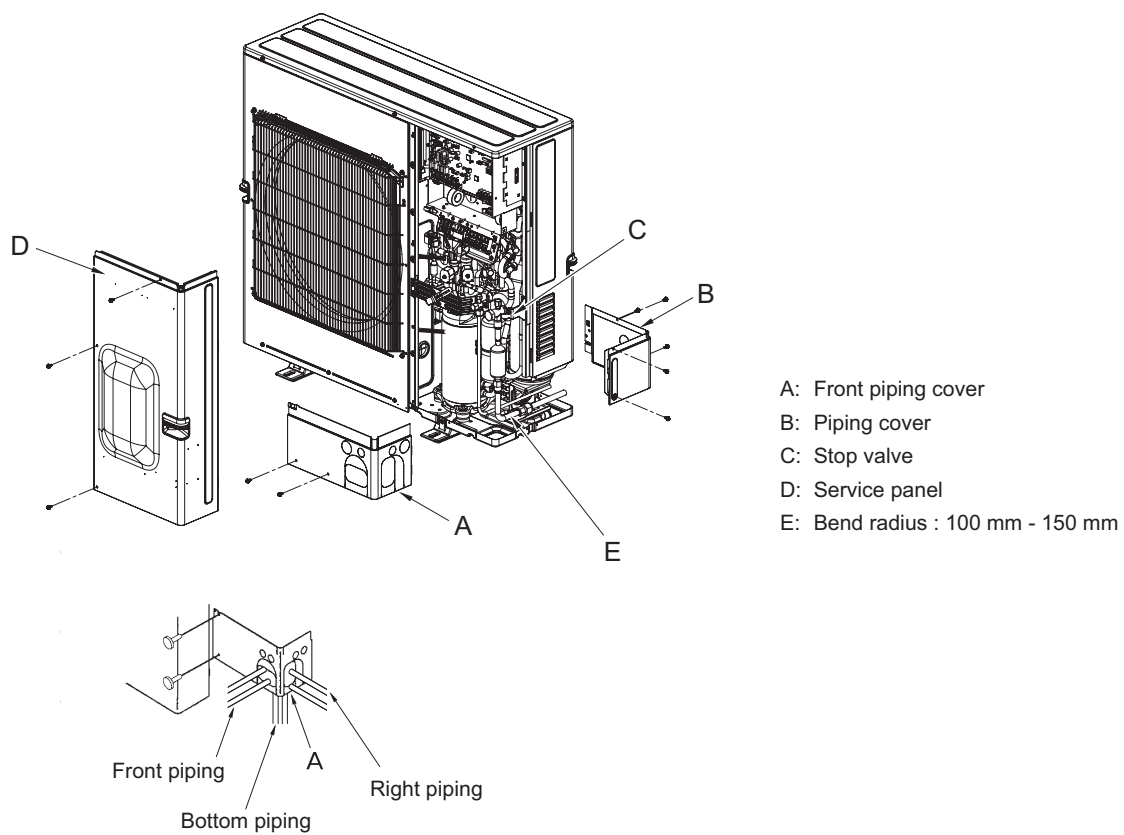
Fig. 12-2-12
Parallel groups arrangement



* Stacked layer ≤ 2 units;
* Side-by-side stacked groups ≤ 2 groups;

Fig. 12-2-13
Stacked groups arrangement

12-3. Piping direction



CITY MULTI

2. INDOOR UNITS

GENERAL LINE-UP

Ceiling cassette (4-way flow type)

PLFY-MS-VEM-E.....	2 - 1
PLFY-MS-VFM-E.....	2 - 19

Ceiling concealed (Medium static pressure type)

PEFY-MS-VMA(L)-A.....	2 - 31
-----------------------	--------

Ceiling suspended

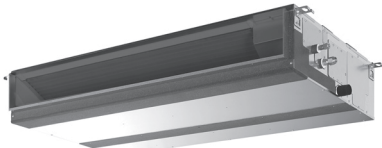
PCFY-MS-VKM-E	2 - 73
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Wall mounted

PKFY-MS-VLM-E, PKFY-MS-VKM-E	2 - 87
------------------------------------	--------

Indoor Units Line-up of CITY MULTI.

All the indoor units are subject to CE regulation.

Model size		10	15	20	25	32	40	50	63	71	80	100	125	140	200	250
Nominal HP		0.4HP	0.6HP	0.8HP	1.0HP	1.3HP	1.6HP	2.0HP	2.5HP	2.8HP	3.2HP	4.0HP	5.0HP	5.6HP	8.0HP	10.0HP
Nominal cooling cap.	kW	1.2	1.7	2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0	22.4	28.0
	Btu/h	4,100	5,800	7,500	9,600	12,300	15,400	19,100	24,200	27,300	30,700	38,200	47,800	54,600	76,400	95,500
Nominal heating cap.	kW	1.4	1.9	2.5	3.2	4.0	5.0	6.3	8.0	9.0	10.0	12.5	16.0	18.0	25.0	31.5
	Btu/h	4,800	6,500	8,500	10,900	13,600	17,100	21,500	27,300	30,700	34,100	42,700	54,600	61,400	85,300	107,500
Ceiling cassette		  PLFY-MS-VEM-E PLFY-MS-VFM-E														
PLFY-MS-VEM-E				●	●	●	●	●	●		●	●	●			
PLFY-MS-VFM-E			●	●	●	●	●	●								
Ceiling concealed		 PEFY-MS-VMA(L)-A														
PEFY-MS-VMA(L)-A				●	●	●	●	●	●	●	●	●	●	●		
Ceiling suspended		 PCFY-MS-VKM-E														
PCFY-MS-VKM-E							●		●			●	●			
Wall mounted		  PKFY-MS-VLM-E PKFY-MS-VKM-E														
PKFY-MS-VLM-E		●	●	●	●	●	●	●								
PKFY-MS-VKM-E									●			●				

* BTU/h=round (kWx3,412,-2)

* Nominal conditions are referable at the Specification sheet.

PLFY-MS-VEM-E

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Ceiling cassette (4-way flow type)

PLFY-MS-VEM-E

1. SPECIFICATIONS

Ceiling cassette (4-way flow type)

Model			PLFY-MS50VEM-E		PLFY-MS63VEM-E		PLFY-MS80VEM-E		PLFY-MS100VEM-E			
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz									
Cooling capacity (Nominal)	*1	kW	5.6		7.1		9.0		11.2			
	*1	BTU / h	19,100		24,200		30,700		38,200			
	Power input	kW	0.03		0.03		0.05		0.07			
	Current input	A	0.32		0.36		0.50		0.67			
Heating capacity (Nominal)	*2	kW	6.3		8.0		10.0		12.5			
	*2	BTU / h	21,500		27,300		34,100		42,700			
	Power input	kW	0.03		0.03		0.05		0.07			
	Current input	A	0.25		0.29		0.43		0.60			
External finish			Galvanized steel sheet									
External dimension H x W x D		mm	258 x 840 x 840						298 x 840 x 840			
		in.	10-3/16 x 33-3/32 x 33-3/32						11-3/4 x 33-3/32 x 33-3/32			
Net weight		kg (lbs)	19 (42)		21 (46)		21 (46)		24 (53)			
Decoration panel	Model		PLP-6EA		PLP-6EA		PLP-6EA		PLP-6EA			
	External finish		MUNSELL (1.0Y 9.2/0.2)									
	Dimension H x W x D	mm	40 x 950 x 950									
		in.	1-9/16 x 37-13/32 x 37-13/32									
	Net weight		kg (lbs)	5 (11)								
Heat exchanger			Cross fin (Aluminum fin and copper tube)									
FAN	Type x Quantity		Turbo fan x 1		Turbo fan x 1		Turbo fan x 1		Turbo fan x 1			
	External static press.	Pa	0		0		0		0			
		mmH ₂ O	0		0		0		0			
	Motor type		DC motor									
	Motor output	kW	0.050		0.050		0.050		0.120			
	Driving mechanism		Direct-drive									
	Airflow rate			(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		
		m ³ / min	13 - 14 - 16 - 18		14 - 15 - 16 - 18		14 - 17 - 20 - 23		20 - 23 - 26 - 29			
		L / s	217 - 233 - 267 - 300		233 - 250 - 267 - 300		233 - 283 - 333- 383		333 - 383 - 433 - 483			
cfm		459 - 494 - 565 - 636		494 - 530 - 565 - 636		494 - 600 - 706 - 812		706 - 812 - 918 - 1024				
Sound pressure level (measured in anechoic room)			(Low-Mid2-Mid1-High) dB <A>		(Low-Mid2-Mid1-High) 26 - 27 - 29 - 31		(Low-Mid2-Mid1-High) 28 - 29 - 30 - 32		(Low-Mid2-Mid1-High) 28 - 31 - 34 - 37			
Insulation material		PS										
Air filter			PP honeycomb									
Protection device			Fuse									
Refrigerant control device			LEV									
Connectable outdoor unit			R32 CITY MULTI									
Diameter of refrigerant pipe	Liquid	mm (in.)	ø6.35 (ø1/4)	Flare	ø9.52 (ø3/8)	Flare	ø9.52 (ø3/8)	Flare	ø9.52 (ø3/8)	Flare		
	Gas	mm (in.)	ø12.7 (ø1/2)	Flare	ø15.88 (ø5/8)	Flare	ø15.88 (ø5/8)	Flare	ø15.88 (ø5/8)	Flare		
Field drain pipe size		mm (in.)	O.D. ø32 (1-1/4) (VP-25)									
Standard attachment	Document Accessory		Installation Manual, Instruction Book									
Remark	Optional parts											
	Decoration panel **1		PLP-6EA		PLP-6EA		PLP-6EA		PLP-6EA			
	Signal receiver panel **1		PLP-6EAL		PLP-6EAL		PLP-6EAL		PLP-6EAL			
	3D i-see Sensor panel **1		PLP-6EAE		PLP-6EAE		PLP-6EAE		PLP-6EAE			
	3D i-see Sensor and signal receiver panel **1		PLP-6EAL		PLP-6EAL		PLP-6EAL		PLP-6EAL			
	Auto elevation and signal receiver panel **1		PLP-6EAJ		PLP-6EAJ		PLP-6EAJ		PLP-6EAJ			
	Auto elevation, 3D i-see Sensor and signal receiver panel **1		PLP-6EAJ		PLP-6EAJ		PLP-6EAJ		PLP-6EAJ			
	With wireless remote controller and signal receiver panel **1		PLP-6EALM2		PLP-6EALM2		PLP-6EALM2		PLP-6EALM2			
	With wireless remote controller, signal receiver and 3D i-see Sensor panel **1		PLP-6EALME2		PLP-6EALME2		PLP-6EALME2		PLP-6EALME2			
	Black panel **1		PLP-6EAB		PLP-6EAB		PLP-6EAB		PLP-6EAB			
	Air outlet shutter plate		PAC-SJ37SP-E		PAC-SJ37SP-E		PAC-SJ37SP-E		PAC-SJ37SP-E			
	High efficiency filter element **2		PAC-SH59KF-E		PAC-SH59KF-E		PAC-SH59KF-E		PAC-SH59KF-E			
	Multi-function casement		PAC-SJ41TM-E		PAC-SJ41TM-E		PAC-SJ41TM-E		PAC-SJ41TM-E			
	3D i-see Sensor corner panel		PAC-SE1ME-E		PAC-SE1ME-E		PAC-SE1ME-E		PAC-SE1ME-E			
	3D total flow unit		PLP-U160ELR-E		PLP-U160ELR-E		PLP-U160ELR-E		PLP-U160ELR-E			
	Wireless signal receiver		PAR-SE9FA-E		PAR-SE9FA-E		PAR-SE9FA-E		PAR-SE9FA-E			
	Space panel		PAC-SJ65AS-E		PAC-SJ65AS-E		PAC-SJ65AS-E		PAC-SJ65AS-E			
	Duct flange for fresh air intake		PAC-SH65OF-E		PAC-SH65OF-E		PAC-SH65OF-E		PAC-SH65OF-E			
	Plasma Quad Connect		PAC-SK51FT-E		PAC-SK51FT-E		PAC-SK51FT-E		PAC-SK51FT-E			
			**1.PLFY-MS-VEM-E should be used together with PLP-6EA/EAL/EAE/EALJ/EALJE/EALM2/EALME2/EAB. **2.PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E.									
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.									
	Note :			*1 Nominal cooling condition							Unit converter	
	Indoor :			27°CDB/19°CWB (81°FDB/66°FWB)							BTU/h = kW x 3.412	
Outdoor :			35°CDB (95°FDB)							cfm = m³/min x 35.31		
Pipe length :			7.5 m (24-9/16 ft)							lbs = kg / 0.4536		
Level difference :			0 m (0 ft)									
			*2 Nominal heating condition									
			20°CDB (68°FDB)									
			7°CDB/6°CWB (45°FDB/43°FWB)									
			7.5 m (24-9/16 ft)									
			0 m (0 ft)									
			* Nominal conditions *1, *2 are subject to JIS B8615-1.									
			* Due to continuing improvement, above specification may be subject to change without notice.									
										*Above specification data is subject to rounding variation		

1. SPECIFICATIONS

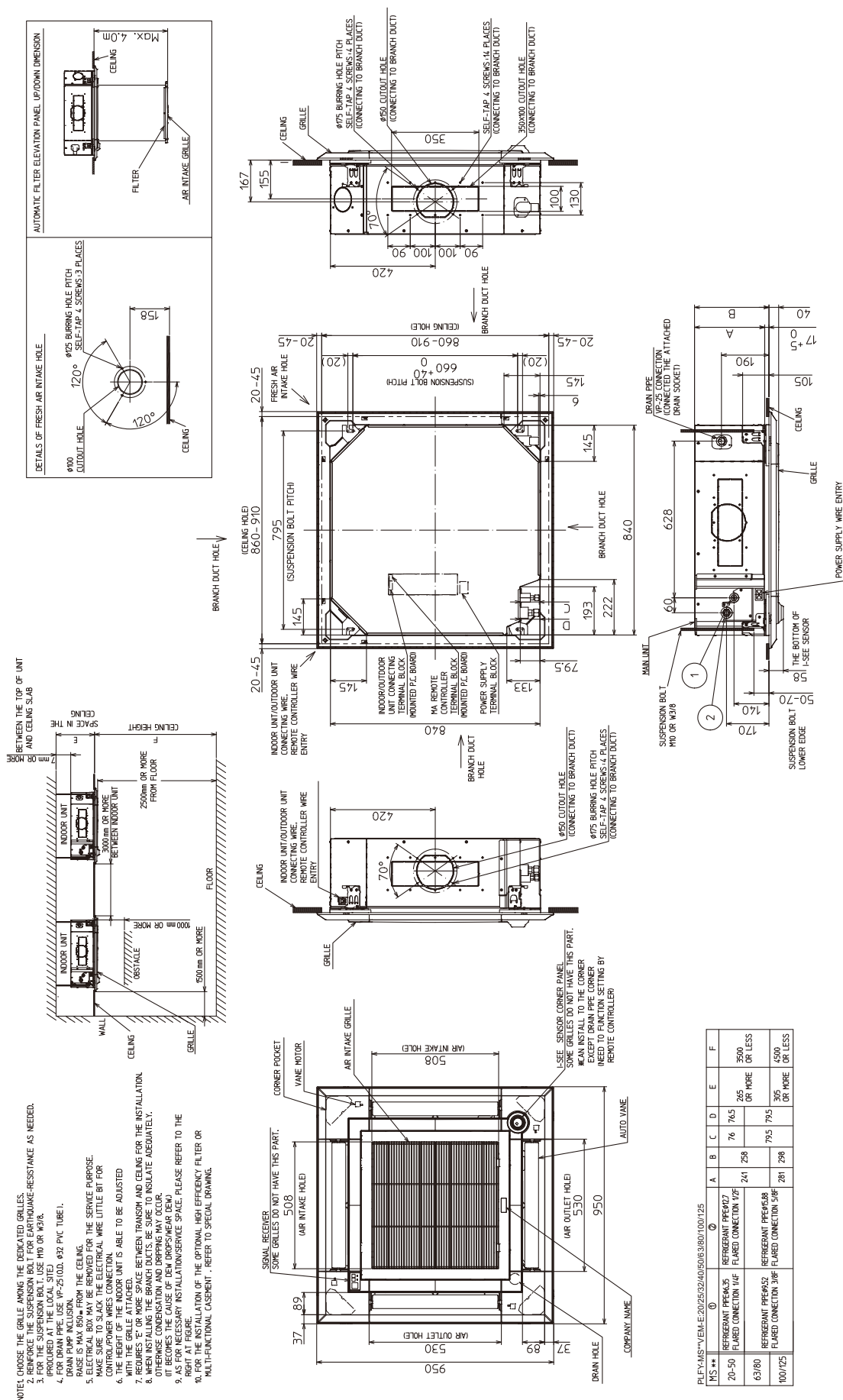
Ceiling cassette (4-way flow type)

PLFY-MS-VEM-E

Model			PLFY-MS125VEM-E		
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz		
Cooling capacity (Nominal)	*1	kW	14.0		
	*1	BTU / h	47,800		
	Power input	kW	0.11		
	Current input	A	1.06		
Heating capacity (Nominal)	*2	kW	16.0		
	*2	BTU / h	54,600		
	Power input	kW	0.11		
	Current input	A	0.99		
External finish			Galvanized steel sheet		
External dimension H x W x D		mm	298 x 840 x 840		
		in.	11-3/4 x 33-3/32 x 33-3/32		
Net weight		kg (lbs)	24 (53)		
Decoration panel	Model		PLP-6EA		
	External finish		MUNSELL (1.0Y 9.2/0.2)		
	Dimension H x W x D	mm	40 x 950 x 950		
		in.	1-9/16 x 37-13/32 x 37-13/32		
	Net weight	kg (lbs)	5 (11)		
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity		Turbo fan x 1		
	External static press.	Pa	0		
		mmH ₂ O	0		
	Motor type		DC motor		
	Motor output	kW	0.120		
	Driving mechanism		Direct-drive		
	Airflow rate		(Low-Mid2-Mid1-High)		
		m ³ / min	22 - 26 - 30 - 35		
	L / s	367 - 433 - 500 - 583			
	cfm	777 - 918 - 1060 - 1236			
Sound pressure level (measured in anechoic room)		dB <A>	(Low-Mid2-Mid1-High) 35 - 39 - 42 - 45		
Insulation material			PS		
Air filter			PP honeycomb		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R32 CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in.)	ø9.52 (ø3/8) Flare		
	Gas	mm (in.)	ø15.88 (ø5/8) Flare		
Field drain pipe size		mm (in.)	O.D. ø32 (1-1/4) (VP-25)		
Standard attachment	Document Accessory		Installation Manual, Instruction Book		
Remark	Optional parts				
	Decoration panel **1		PLP-6EA		
	Signal receiver panel **1		PLP-6EAL		
	3D i-see Sensor panel **1		PLP-6EAE		
	3D i-see Sensor and signal receiver panel **1		PLP-6EALE		
	Auto elevation and signal receiver panel **1		PLP-6EAJ		
	Auto elevation, 3D i-see Sensor and signal receiver panel **1		PLP-6EAJE		
	With wireless remote controller and signal receiver panel **1		PLP-6EALM2		
	With wireless remote controller, signal receiver and 3D i-see Sensor panel **1		PLP-6EALME2		
	Black panel **1		PLP-6EAB		
	Air outlet shutter plate		PAC-SJ37SP-E		
	High efficiency filter element **2		PAC-SH59KF-E		
	Multi-function casement		PAC-SJ41TM-E		
	3D i-see Sensor corner panel		PAC-SE1ME-E		
	3D total flow unit		PLP-U160ELR-E		
	Wireless signal receiver		PAR-SE9FA-E		
	Space panel		PAC-SJ65AS-E		
	Duct flange for fresh air intake		PAC-SH65OF-E		
	Plasma Quad Connect		PAC-SK51FT-E		
			**1.PLFY-MS-VEM-E should be used together with PLP-6EA/EAL/EAE/EALE/EAJ/EAJE/EALM2/EALME2/EAB. **2.PAC-SJ41TM-E is necessary to use with filter PAC-SH59KF-E.		
	Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.		
Note :	*1 Nominal cooling condition		*2 Nominal heating condition		Unit converter BTU/h = kW x 3.412 cfm = m³/min x 35.31 lbs = kg / 0.4536
	Indoor : 27°CDB/19°CWB (81°FDB/66°FWB)		20°CDB (68°FDB)		
	Outdoor : 35°CDB (95°FDB)		7°CDB/6°CWB (45°FDB/43°FWB)		
	Pipe length : 7.5 m (24-9/16 ft)		7.5 m (24-9/16 ft)		
	Level difference : 0 m (0 ft)		0 m (0 ft)		
* Nominal conditions *1, *2 are subject to JIS B8615-1.					
* Due to continuing improvement, above specification may be subject to change without notice.					
*Above specification data is subject to rounding variation.					

Ceiling cassette (4-way flow type)

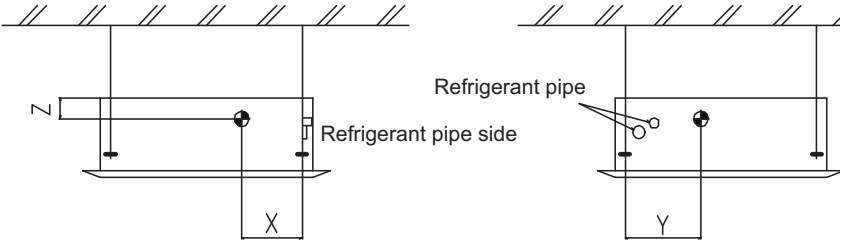
Unit: mm



PLP-MS™ VEM-E	20/32/50/60/80/100/125		A	B	C	D	E	F
NS**	REFRIGERANT PRE#07 FLARED CONNECTION 1/2"	REFRIGERANT PRE#35 FLARED CONNECTION 1/4"	241	258	76	76.5	265	3900 OR MORE OR LESS
20-50								
63/80	REFRIGERANT PRE#68 FLARED CONNECTION 5/8"	REFRIGERANT PRE#62 FLARED CONNECTION 3/8"	281	298	79.5	79.5	305	4500 OR LESS
100/125								

PLFY-MS-VEM-E

PLFY-MS20, 25, 32, 40, 50, 63, 80, 100, 125VEM-E



(mm)[in]

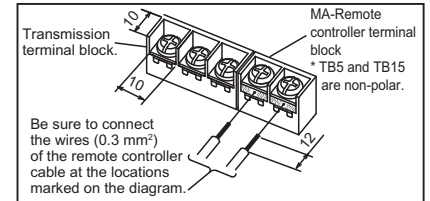
Model name	X	Y	Z
PLFY-MS20VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS25VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS32VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS40VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS50VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS63VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS80VEM-E	325 [12-13/16]	390 [15-3/8]	115 [4-17/32]
PLFY-MS100VEM-E	325 [12-13/16]	380 [14-31/32]	100 [3-15/16]
PLFY-MS125VEM-E	325 [12-13/16]	380 [14-31/32]	100 [3-15/16]

PLFY-MS20, 25, 32, 40, 50, 63, 80, 100, 125VEM-E

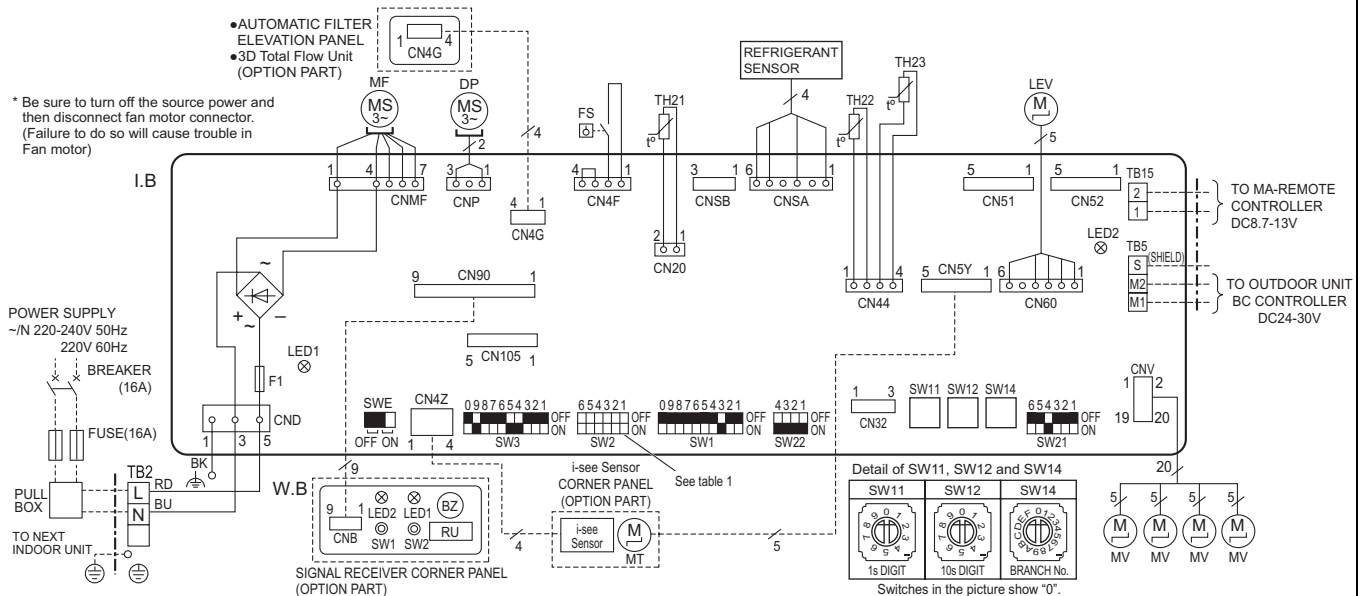
【LEGEND】

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	MV	VANE MOTOR
CN32	CONNECTOR	TH21	THERMISTOR
CN51	CENTRALLY CONTROL	TH22	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN52	REMOTE INDICATION	TH23	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
CN105	IT TERMINAL		PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
F1	FUSE (T 6.3AL 250V)		
SW1	SWITCH	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
SW2	MODE SELECTION	BZ	BUZZER
SW3	CAPACITY CODE	LED1	LED (OPERATION INDICATION : GREEN)
SW11	MODE SELECTION	LED2	LED (PREPARATION FOR HEATING : ORANGE)
SW12	ADDRESS SETTING 1s DIGIT	RU	RECEIVING UNIT
SW14	ADDRESS SETTING 10s DIGIT	SW1	EMERGENCY OPERATION (HEAT / DOWN)
SW21	BRANCH No.	SW2	EMERGENCY OPERATION (COOL / UP)
	CEILING HEIGHT	MT	i-see Sensor MOTOR
	DISCHARGE OUTLET NUMBER		
	OPTION SELECTOR		
SW22	PAIR NO. SETTING		
SWE	DRAIN PUMP (TEST MODE)		
DP	DRAIN PUMP		
FS	DRAIN FLOAT SWITCH		
LEV	LINEAR EXPANSION VALVE		
MF	FAN MOTOR		

MA-Remote controller terminal block and transmission terminal block



PLFY-MS-VEM-E



<Table 1>

MODELS	SW2	MODELS	SW2	MODELS	SW2
20	OFF ON	40	OFF ON	80	OFF ON
25	OFF ON	50	OFF ON	100	OFF ON
32	OFF ON	63	OFF ON	125	OFF ON

LED on indoor board for service

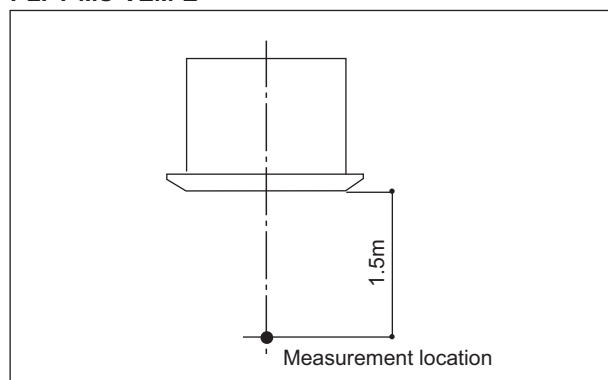
Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:220-240V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

NOTES:

- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram are,
□ □ □ : terminal block, □ ○ □ □ : connector.
- The setting of SW2 differs in the capacity and model. For the detail, see table 1.
- Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
- The black square (■) in the wiring diagram indicates a switch position.
- When installing the automatic filter elevation panel and the 3D Total Flow Unit together, refer to the wiring diagram of the 3D Total Flow Unit.

5-1. Sound levels

PLFY-MS-VEM-E



* Measured in anechoic room.

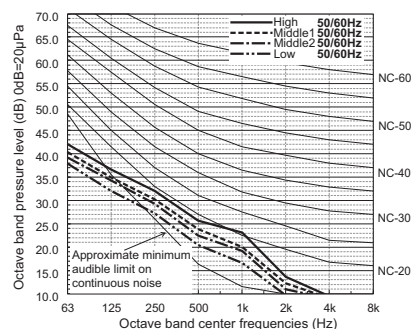
Sound level at anechoic room : Low-Mid2-Mid1-High

	Sound level dB (A)
PLFY-MS20VEM-E PLFY-MS25VEM-E	24-26-27-29
PLFY-MS32VEM-E PLFY-MS40VEM-E PLFY-MS50VEM-E	26-27-29-31
PLFY-MS63VEM-E	28-29-30-32
PLFY-MS80VEM-E	28-31-34-37
PLFY-MS100VEM-E	34-37-39-41
PLFY-MS125VEM-E	35-39-42-45

5-2. NC curves

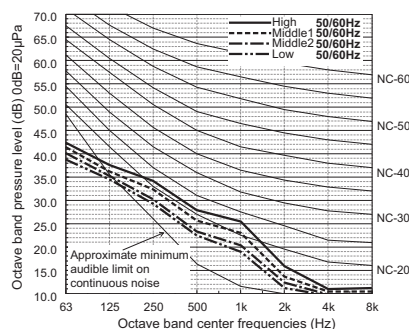
PLFY-MS20, 25VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



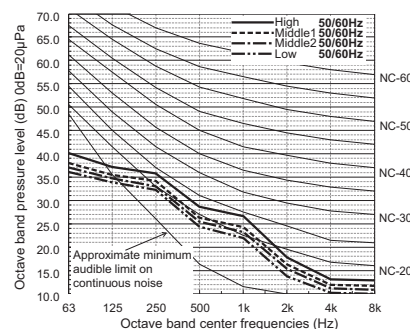
PLFY-MS32, 40, 50VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



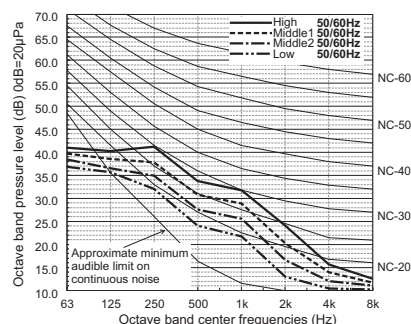
PLFY-MS63VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



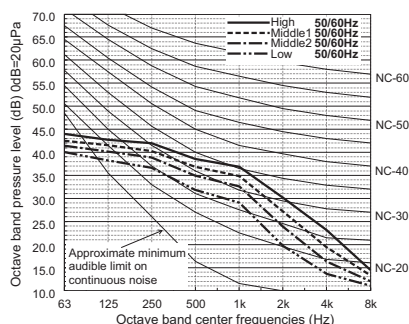
PLFY-MS80VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



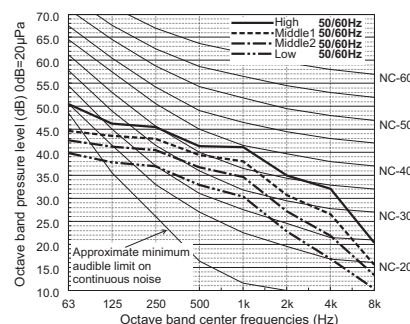
PLFY-MS100VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



PLFY-MS125VEM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



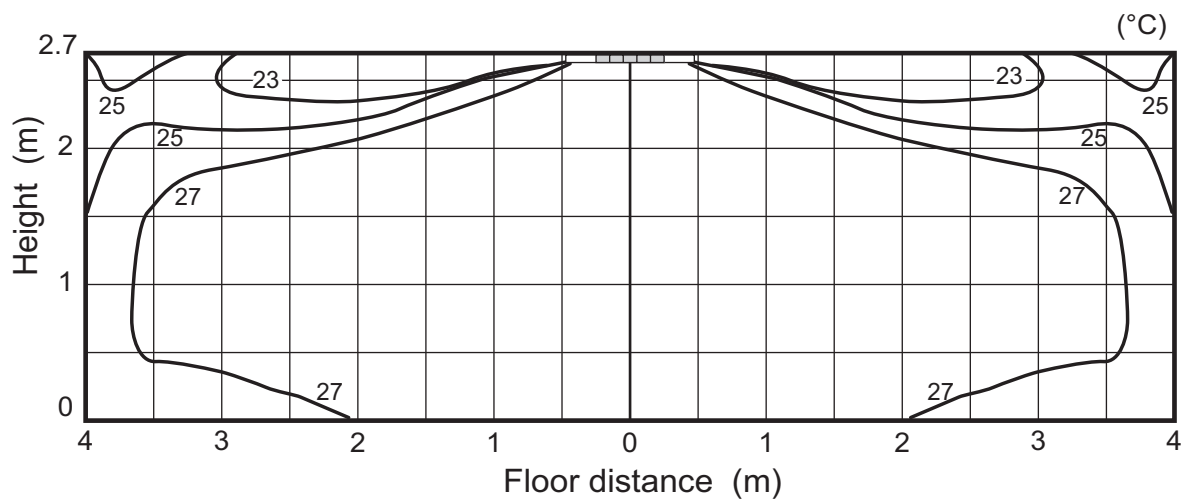
6-1. Temperature distributions

PLFY-MS80VEM-E

<Cooling mode> Standard

Flow angle : 10° 4-way flow

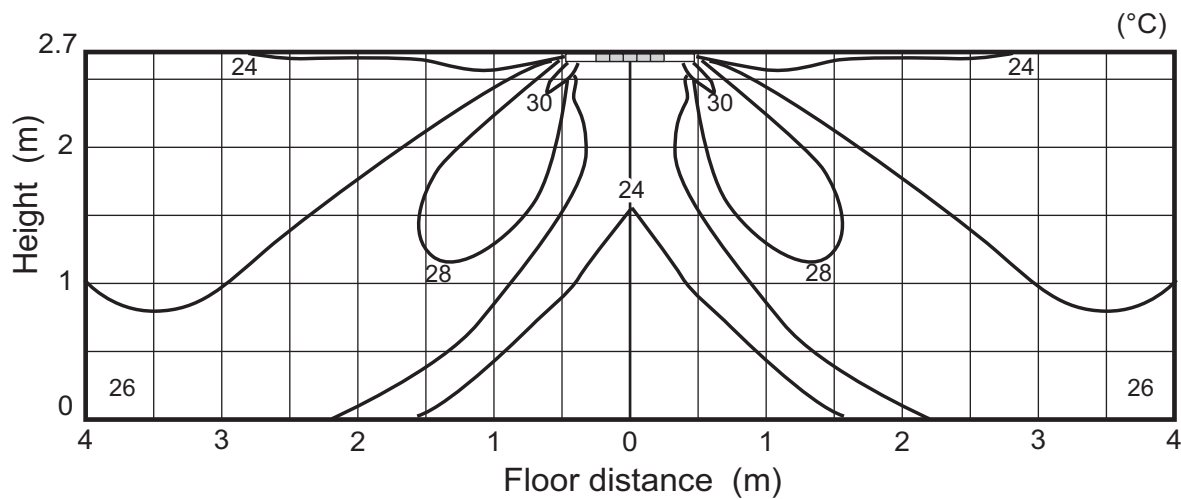
Ceiling height : 2.7m



<Heating mode> Standard

Flow angle : 60° 4-way flow

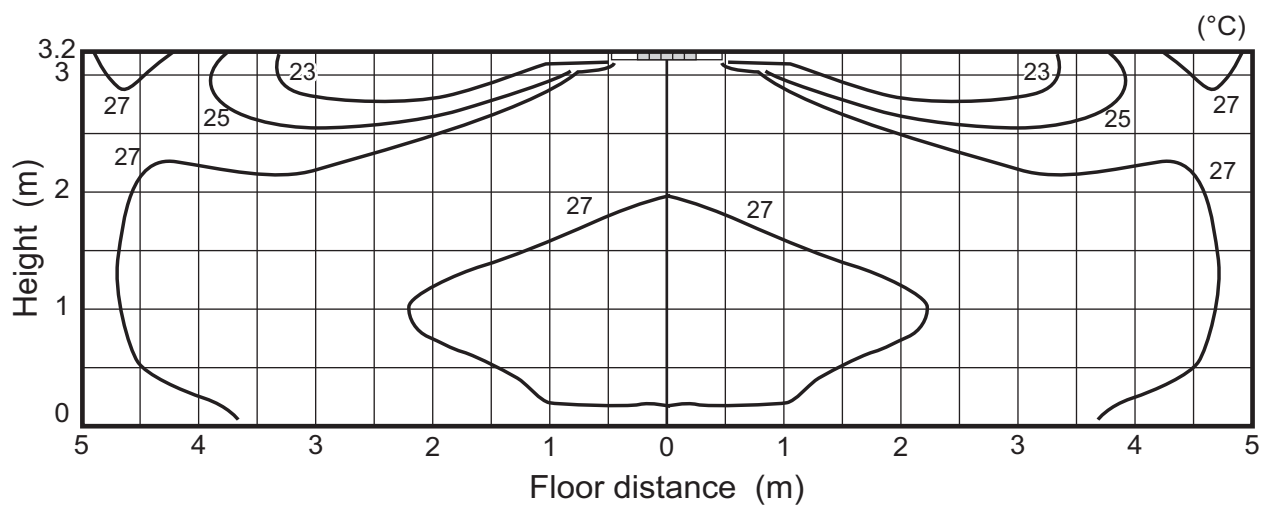
Ceiling height : 2.7m



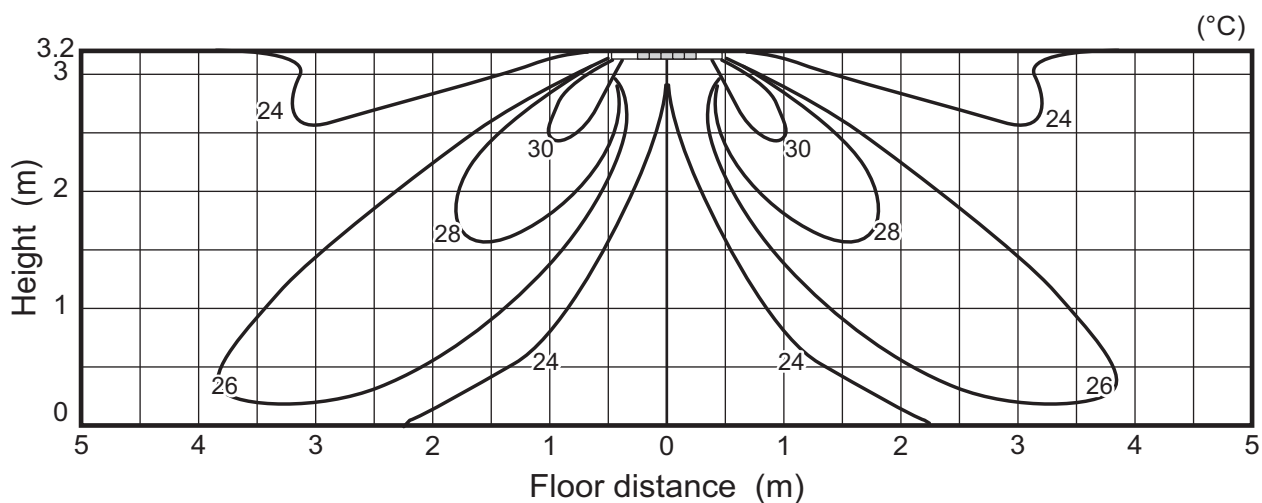
Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

PLFY-MS100VEM-E

<Cooling mode> Standard
 Flow angle : 10° 4-way flow
 Ceiling height : 3.2m



<Heating mode> Standard
 Flow angle : 60° 4-way flow
 Ceiling height : 3.2m

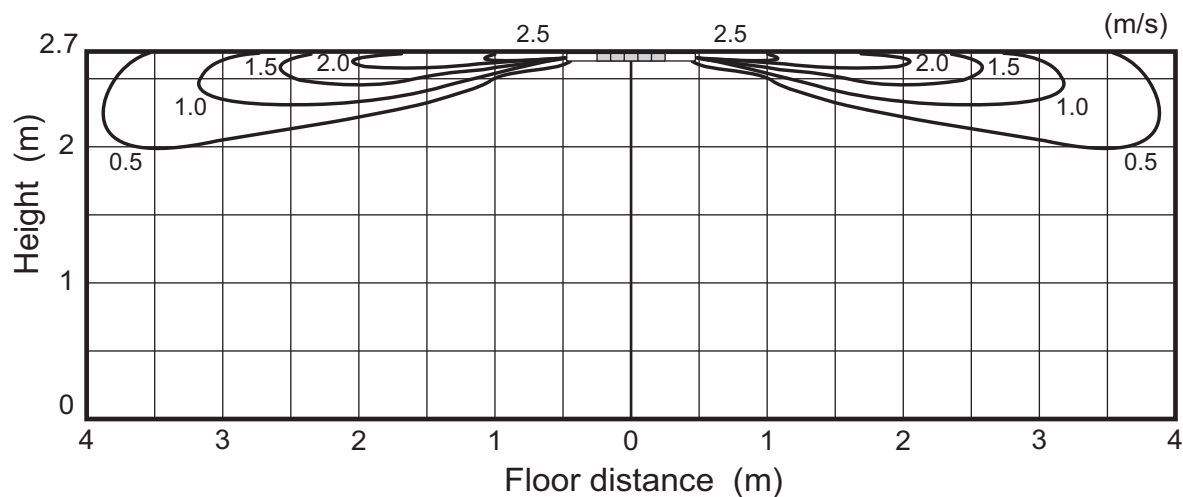


Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

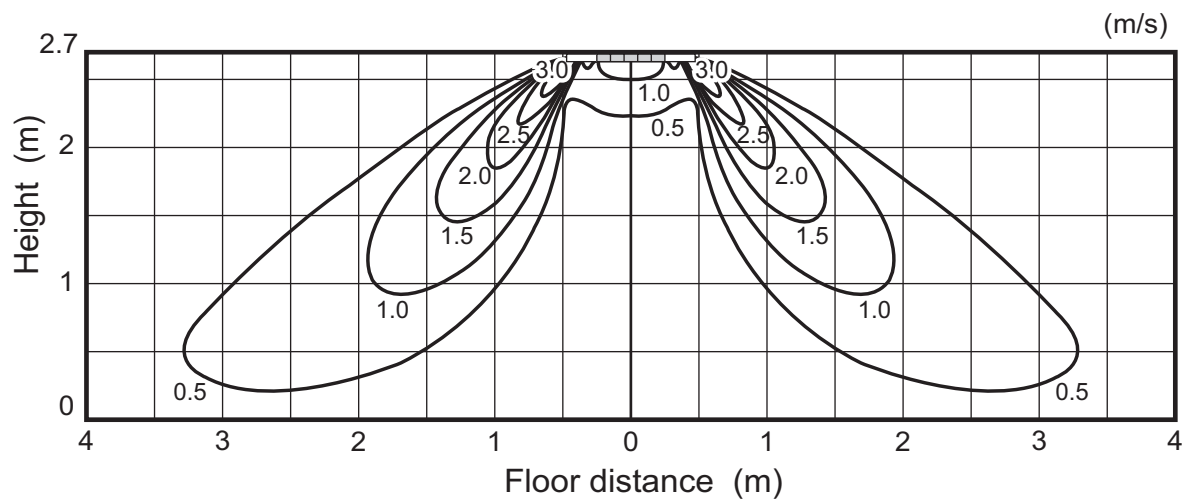
6-2. Airflow distributions

PLFY-MS80VEM-E

<Cooling mode> Standard
 Flow angle : 10° 4-way flow
 Ceiling height : 2.7m



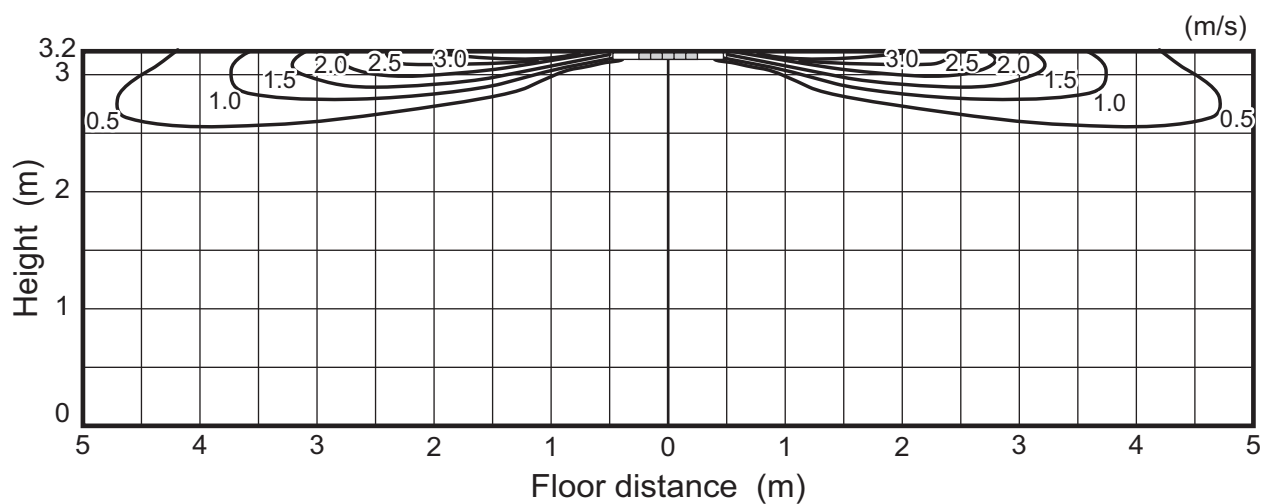
<Heating mode> Standard
 Flow angle : 60° 4-way flow
 Ceiling height : 2.7m



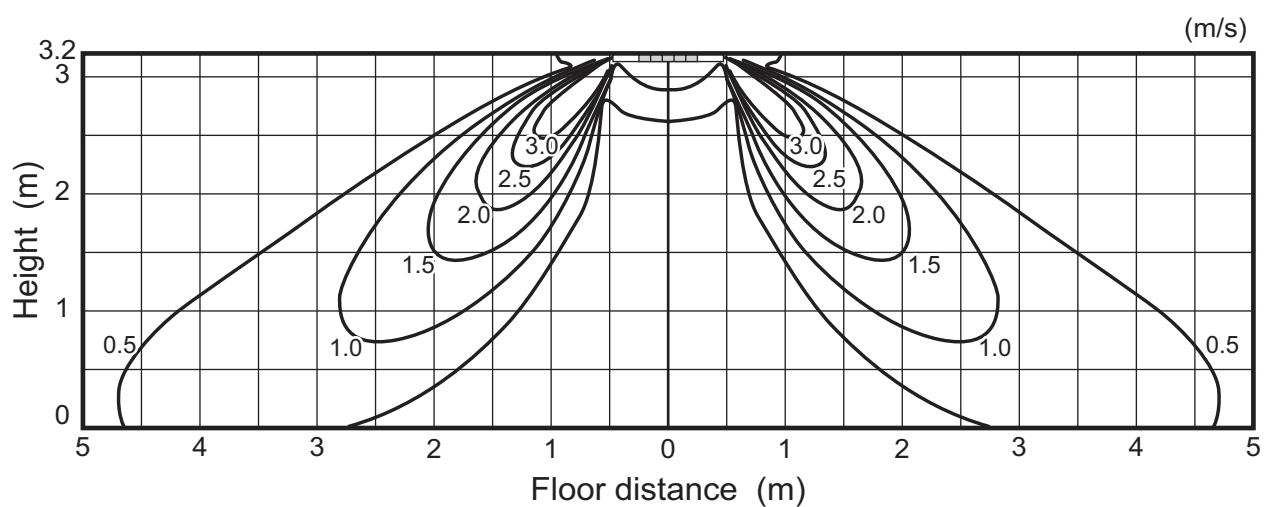
Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

PLFY-MS100VEM-E

<Cooling mode> Standard
 Flow angle : 10° 4-way flow
 Ceiling height : 3.2m



<Heating mode> Standard
 Flow angle : 60° 4-way flow
 Ceiling height : 3.2m



Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

7. ELECTRICAL CHARACTERISTICS

Ceiling cassette (4-way flow type)

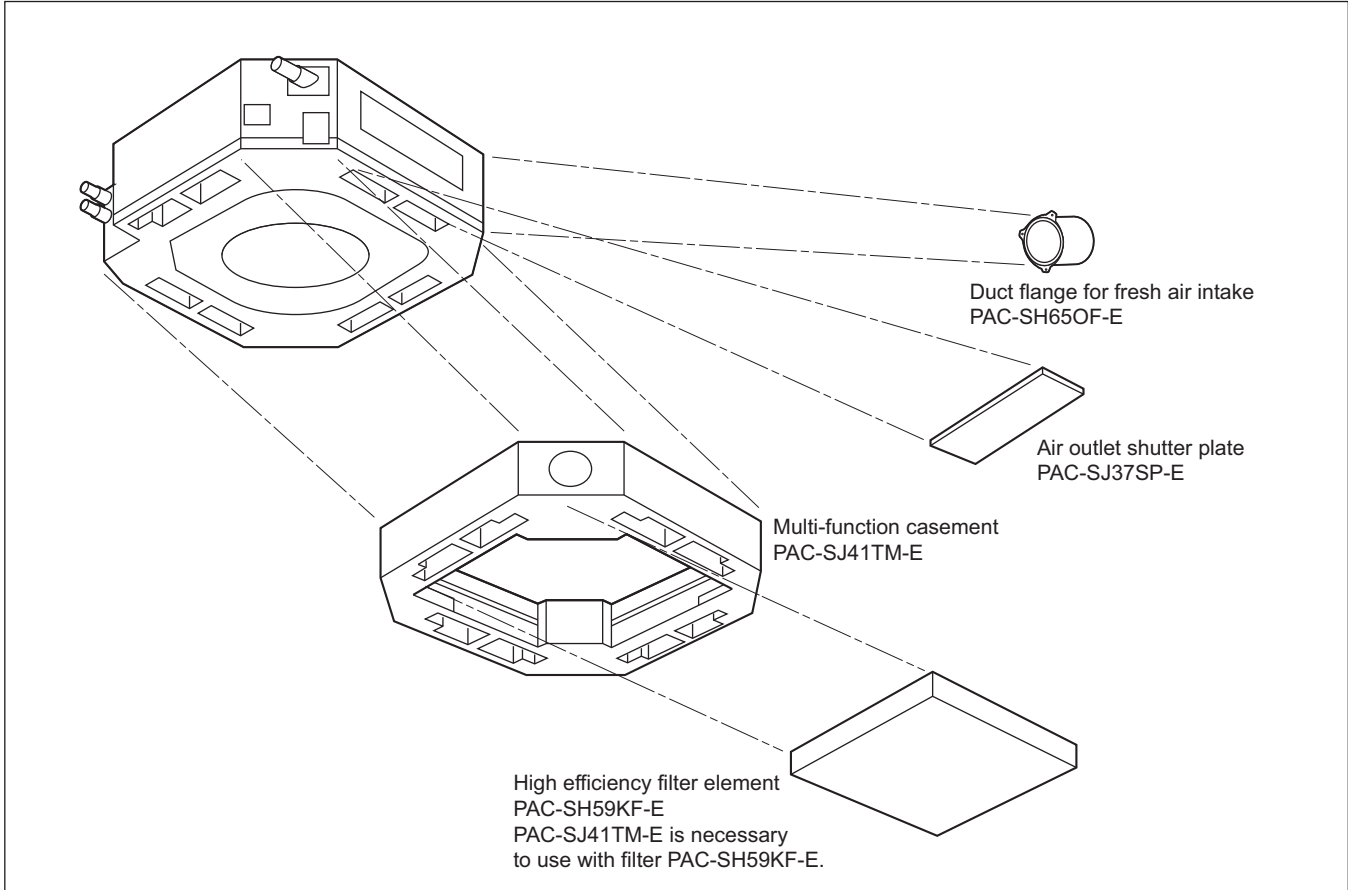
Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)
IFM (Indoor Fan Motor), Output (Fan motor rated output)

Model name	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A)	Output (kW)	FLA(A)
PLFY-MS20VEM-E	220-240V/50Hz 220V/60Hz	Max.: 264V Min.: 198V	0.39	0.05	0.31
PLFY-MS25VEM-E			0.39	0.05	0.31
PLFY-MS32VEM-E			0.40	0.05	0.32
PLFY-MS40VEM-E			0.40	0.05	0.32
PLFY-MS50VEM-E			0.40	0.05	0.32
PLFY-MS63VEM-E			0.45	0.05	0.36
PLFY-MS80VEM-E			0.63	0.05	0.50
PLFY-MS100VEM-E			0.84	0.12	0.67
PLFY-MS125VEM-E			1.33	0.12	1.06

PLFY-MS-VEM-E

8-1. Optional parts line up for the Indoor unit

	Description	Model
PLFY-MS-VEM-E	Air outlet shutter plate	PAC-SJ37SP-E
	Multi-function casement	PAC-SJ41TM-E
	High efficiency filter element	PAC-SH59KF-E
	3D i-see Sensor corner panel	PAC-SE1ME-E
	Auto elevation and signal receiver panel	PLP-6EAJ
	Auto elevation, 3D i-see Sensor and signal receiver panel	PLP-6EAJE
	Wireless signal receiver	PAR-SE9FA-E
	Space panel	PAC-SJ65AS-E
	Duct flange for fresh air intake	PAC-SH65OF-E
	3D total flow unit	PLP-U160ELR-E
	Plasma Quad Connect	PAC-SK51FT-E

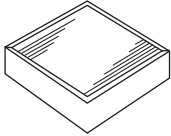


8-2. Air outlet shutter plate

Using the air outlet shutter plate to block the air outlet to modify the air-way from 4 to 3 or 2. With one shutter plate, 4 air-ways can be changed to 3; With two shutter plates, 4 air-ways can be changed to 2; Changing to 1 way is not allowed. Material: Foamed polyethylene + foamed urethane, color: Black			
Item	Shutter plate	Shutter plate	
Quantity	2	1	
Shape			

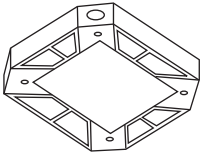
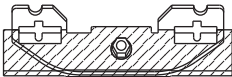
Detailed installation information should be referred to its Installation Manual.

8-3. High efficiency filter element

Life span: 2,500 hr (Dust concentration 0.15mg/m³); Colorimetric method 65% (JIS 11 class); No re-production. * The actual dust situation affects the filter life span, which should be considered at the applying site. Material: Electrostatic polyolefin fiber High efficiency filter element PAC-SH59KF-E should be used together with the Multi-function casement PAC-SJ41TM-E. When using PAC-SH59KF-E, switching on SW21-5 of the Indoor unit address board is needed. Details should be referred to its Installation Manual.		
Quantity	1	
Shape		

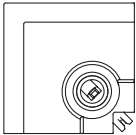
Detailed installation information is referred in its Installation Manual.

8-4. Multi-function casement

Multi-function casement is used for High efficiency filter element and/or fresh air intake from outdoor. It should be used with High efficiency filter element PAC-SH59KF-E (Colorimetric method 65%). Fresh air intake on the Multi-function casement is possible from any 2 or less corners among the 4 ones. But duct and flange on the casement should be prepare locally.				
Item	Multi-functional casement	Screw with washer (black)	Screw	Grille securing bracket
Quantity	1	4	8	4
Shape		M5 × 0.8 × 25 	M5 × 0.8 × 12 	With insulator 

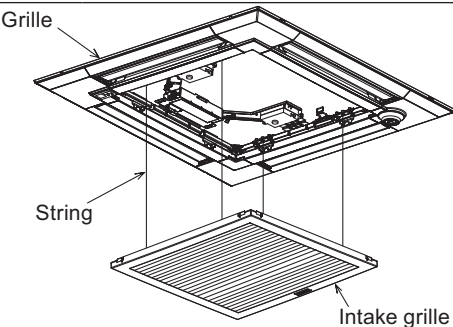
Detailed installation information should be referred to its Installation Manual.

8-5. 3D i-see Sensor corner panel

3D i-see Sensor provides comfortable space as it detects the floor temperature to prevent spotty temperature. And that enables the unit to save energy. Attention Make sure that there are no gaps between the unit and the grille, and the grille and ceiling. ※ It may cause dew dripping.		
Item	3D i-see Sensor corner panel	
Quantity	1	
Shape		

Detailed installation information should be referred to its Installation Manual.

8-6. Auto elevation panel

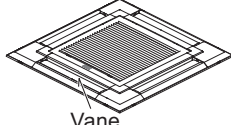
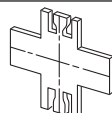
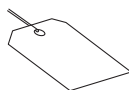
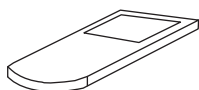
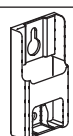


Grille

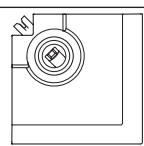
String

Intake grille

- Air intake grille can be lifted and lowered automatically by wired remote controller (MA type) or wireless remote controller (Item: Wireless remote controller for auto elevation panel).
- Lowering the air intake grille allows you to clean the filter easily.
- You can set up eight different stages of lowering distance for the air intake grille according to the set up location if desired. (Maximum: 4m)

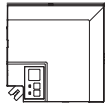
Item	Grille	Installation gauge	Tag	Screw
Quantity	1	1	1	2
Shape	 Vane	 (Used split into four pieces)		 4 × 16
Item	Wireless remote controller for auto elevation panel	Battery	Remote controller holder	
Quantity	1	1	1	
Shape		 Lithium battery CR2025 3V		

Grille with 3D i-see Sensor

Item	Screw	3D i-see Sensor corner panel
Quantity	1	1
Shape	 4 × 16	

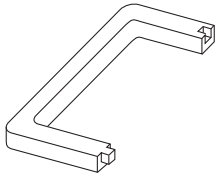
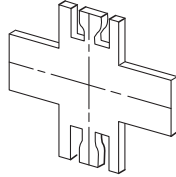
Detailed installation information should be referred to its Installation Manual.

8-7. Wireless signal receiver

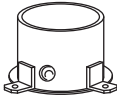
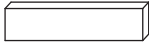
Wireless signal receiver PAR-SE9FA-E is necessary for using wireless remote controller		
Item	Wireless signal receiver	
Quantity	1	
Shape		

Detailed installation information should be referred to its Installation Manual.

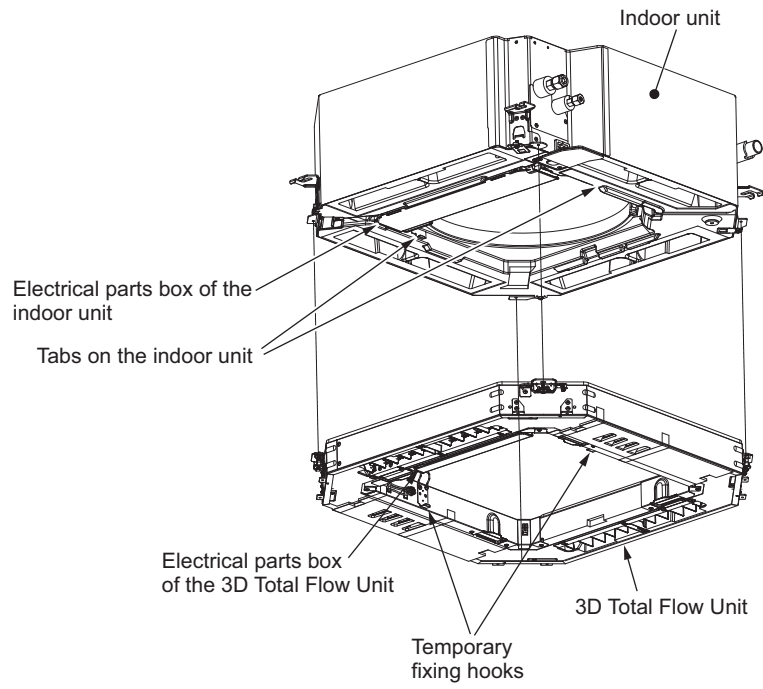
8-8. Space panel

Decorative cover for the installation when the ceiling height is low.		
Item	Space panel	Gauge for installation
Quantity	2	1
Shape		(Split this into four pieces) 

8-9. Duct flange for fresh air intake

Part to attach a duct to take in fresh air from outdoors.			
Item	Duct flange	Insulator	Screws (M4 x 10)
Quantity	1	1	3
Shape			

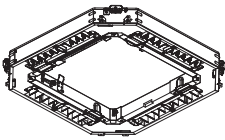
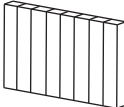
8-10. 3D Total flow unit



3D Total Flow is an innovative function. Our original 3D i-see sensor detects the temperature of the floor, and then the newly installed 3D Total Flow unit automatically controls the airflow in the left/right directions in a smart manner.

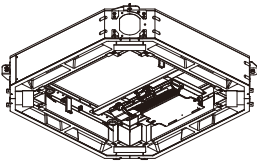
*3D Total Flow unit (PLP-U160ELR-E) cannot be used with Plasma Quad Connect (PAC-SK51FT-E), Insulation kit (PAC-SK36HK-E), Shutter Plate (PAC-SJ37SP-E), Multi functional casement (PAC-SJ41TM-E) and High-efficiency filter element (PAC-SH59KF-E).

*PAR-41MAA is required for each setting.

Item	3D Total Flow Unit	Screw	Mounting bracket for the grille	Rectifier piece
Quantity	1	8	4	1
Shape		M5×12 		
Item	Screw	Corner panel insulator		
Quantity	1	1		
Shape	ST4×10 	 Note: One sheet consists of 8 insulators.		

8-11. Plasma Quad Connect

PAC-SK51FT-E connects to CN105 on the indoor unit. When using an additional optional part, connect it to CN105 of PAC-SK51FT-E.

Item	Plasma Quad Connect	Screw with washer (black)	Screw	Grille securing bracket
Quantity	1	4	8	4
Shape		M5 × 0.8 × 25 	M5 × 0.8 × 12 	With insulator 

Detailed installation information should be referred to its Installation Manual.

PLFY-MS-VFM-E

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1. SPECIFICATIONS

Ceiling cassette (4-way flow type)

Model			PLFY-MS15VFM-E	PLFY-MS20VFM-E	PLFY-MS25VFM-E
Power source			1-phase 220-230-240V 50Hz/220V 60Hz		
Cooling capacity (Nominal)	*1	kW	1.7	2.2	2.8
	*1	BTU / h	5,800	7,500	9,600
	Power input	kW	0.02	0.02	0.02
	Current input	A	0.21	0.22	0.23
Heating capacity (Nominal)	*2	kW	1.9	2.5	3.2
	*2	BTU / h	6,500	8,500	10,900
	Power input	kW	0.02	0.02	0.02
	Current input	A	0.16	0.17	0.18
External finish			Galvanized steel sheet		
External dimension H x W x D		mm	208 x 570 x 570	208 x 570 x 570	208 x 570 x 570
		in.	8-1/4 x 22-1/2 x 22-1/2	8-1/4 x 22-1/2 x 22-1/2	8-1/4 x 22-1/2 x 22-1/2
Net weight		kg (lbs)	13 (29)	13 (29)	13 (29)
Decoration panel	Model		SLP-2FA(L)(E)	SLP-2FA(L)(E)	SLP-2FA(L)(E)
	External finish		MUNSELL (1.0Y 9.2/0.2)		
	Dimension	mm	10 x 625 x 625	10 x 625 x 625	10 x 625 x 625
	H x W x D	in.	3/8 x 24-5/8 x 24-5/8	3/8 x 24-5/8 x 24-5/8	3/8 x 24-5/8 x 24-5/8
	Net Weight	kg (lbs)	3 (7)	3 (7)	3 (7)
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity		Turbo fan x 1		
	External static press.		0Pa (0mmH ₂ O)	0Pa (0mmH ₂ O)	0Pa (0mmH ₂ O)
	Motor type		DC motor		
	Motor output	kW	0.05	0.05	0.05
	Driving mechanism		Direct-driven		
	Airflow rate		(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
		m ³ / min	6.5-7.5-8.0	6.5-7.5-8.5	6.5-8.0-9.0
L / s		108-125-133	108-125-142	108-133-150	
Sound pressure level (measured in anechoic room)	dB <A>	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)	
		26-28-30	26-29-31	26-30-33	
Insulation material			PS		
Air filter			PP honeycomb fabric (long life type)		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R32 CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in.)	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare
	Gas	mm (in.)	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4) (PVC pipe VP-25 connectable)		
Standard attachment			Installation manual, Instruction book		
Remark	Optional parts				
	Decoration panel		SLP-2FA/SLP-2FAE/SLP-2FAL/SLP-2FALE/SLP-2FALM2/SLP-2FALME2		
	Plasma Quad Connect		SLP-2FAP/SLP-2FALP/SLP-2FALMP2		
			*PLFY-MS-VFM-E should be used together with Decoration panel.		
Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.			
Note : *1 Nominal cooling condition Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft) *2 Nominal heating condition 20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft) Unit converter BTU/h = kW x 3,412 cfm = m³/min x 35.31 lbs = kg / 0.4536 *Above specification data is subject to rounding variation					
* Nominal conditions *1, *2 are subject to JIS B8615-1. * Due to continuing improvement, above specification may be subject to change without notice.					

1. SPECIFICATIONS

Ceiling cassette (4-way flow type)

Model			PLFY-MS32VFM-E	PLFY-MS40VFM-E	PLFY-MS50VFM-E
Power source			1-phase 220-230-240V 50Hz/220V 60Hz		
Cooling capacity (Nominal)	*1	kW	3.6	4.5	5.6
	*1	BTU / h	12,300	15,400	19,100
	Power input	kW	0.02	0.03	0.04
	Current input	A	0.24	0.28	0.40
Heating capacity (Nominal)	*2	kW	4.0	5.0	6.3
	*2	BTU / h	13,600	17,100	21,500
	Power input	kW	0.02	0.03	0.04
	Current input	A	0.19	0.23	0.35
External finish			Galvanized steel sheet		
External dimension H x W x D		mm	208 x 570 x 570	208 x 570 x 570	208 x 570 x 570
		in.	8-1/4 x 22-1/2 x 22-1/2	8-1/4 x 22-1/2 x 22-1/2	8-1/4 x 22-1/2 x 22-1/2
Net weight		kg (lbs)	14 (31)	14 (31)	14 (31)
Decoration panel	Model		SLP-2FA(L)(E)	SLP-2FA(L)(E)	SLP-2FA(L)(E)
	External finish		MUNSELL (1.0Y 9.2/0.2)		
	Dimension		10 x 625 x 625	10 x 625 x 625	10 x 625 x 625
	H x W x D		3/8 x 24-5/8 x 24-5/8	3/8 x 24-5/8 x 24-5/8	3/8 x 24-5/8 x 24-5/8
	Net Weight		3 (7)	3 (7)	3 (7)
Heat exchanger			Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity		Turbo fan x 1		
	External static press.		0Pa (0mmH ₂ O)	0Pa (0mmH ₂ O)	0Pa (0mmH ₂ O)
	Motor type		DC motor		
	Motor output	kW	0.05	0.05	0.05
	Driving mechanism		Direct-driven		
	Airflow rate		(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			m ³ / min	7.0-8.0-9.5	7.5-9.0-11.0
L / s			117-133-158	125-150-183	150-183-217
Sound pressure level (measured in anechoic room)		cfm	247-282-335	265-318-388	318-388-459
		dB <A>	(Low-Mid-High)	(Low-Mid-High)	(Low-Mid-High)
			26-30-34	28-33-39	33-39-43
Insulation material			PS		
Air filter			PP honeycomb fabric (long life type)		
Protection device			Fuse		
Refrigerant control device			LEV		
Connectable outdoor unit			R32 CITY MULTI		
Diameter of refrigerant pipe	Liquid	mm (in.)	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare	ø6.35 (ø1/4) Flare
	Gas	mm (in.)	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare	ø12.7 (ø1/2) Flare
Field drain pipe size		mm (in.)	O.D. 32 (1-1/4) (PVC pipe VP-25 connectable)		
Standard attachment			Installation manual, Instruction book		
Remark	Optional parts				
	Decoration panel		SLP-2FA/SLP-2FAE/SLP-2FAL/SLP-2FALE/SLP-2FALM2/SLP-2FALME2		
	Plasma Quad Connect		SLP-2FAP/SLP-2FALP/SLP-2FALMP2		
			*PLFY-MS-VFM-E should be used together with Decoration panel.		
Installation		Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.			
Note : *1 Nominal cooling condition *2 Nominal heating condition Indoor : 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor : 35°CDB (95°FDB) Pipe length : 7.5 m (24-9/16 ft) Level difference : 0 m (0 ft) 20°CDB (68°FDB) 7°CDB/6°CWB (45°FDB/43°FWB) 7.5 m (24-9/16 ft) 0 m (0 ft) Unit converter BTU/h = kW x 3.412 cfm = m³/min x 35.31 lbs = kg / 0.4536 *Above specification data is subject to rounding variation * Nominal conditions *1, *2 are subject to JIS B8615-1. * Due to continuing improvement, above specification may be subject to change without notice.					

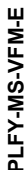
PLFY-MS-VFM-E

PLFY-MS-VFM-E

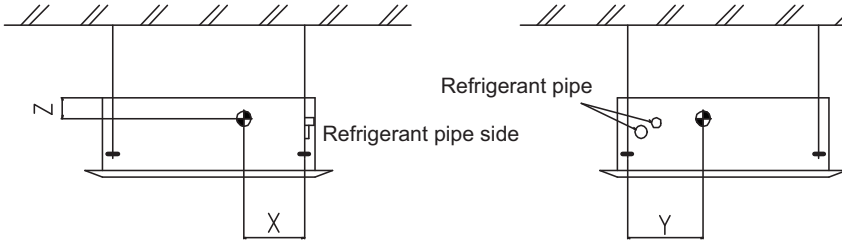
PLFY-MS-VFM-E

PLFY-MS-VFM-E

PLFY-MS-VFM-E



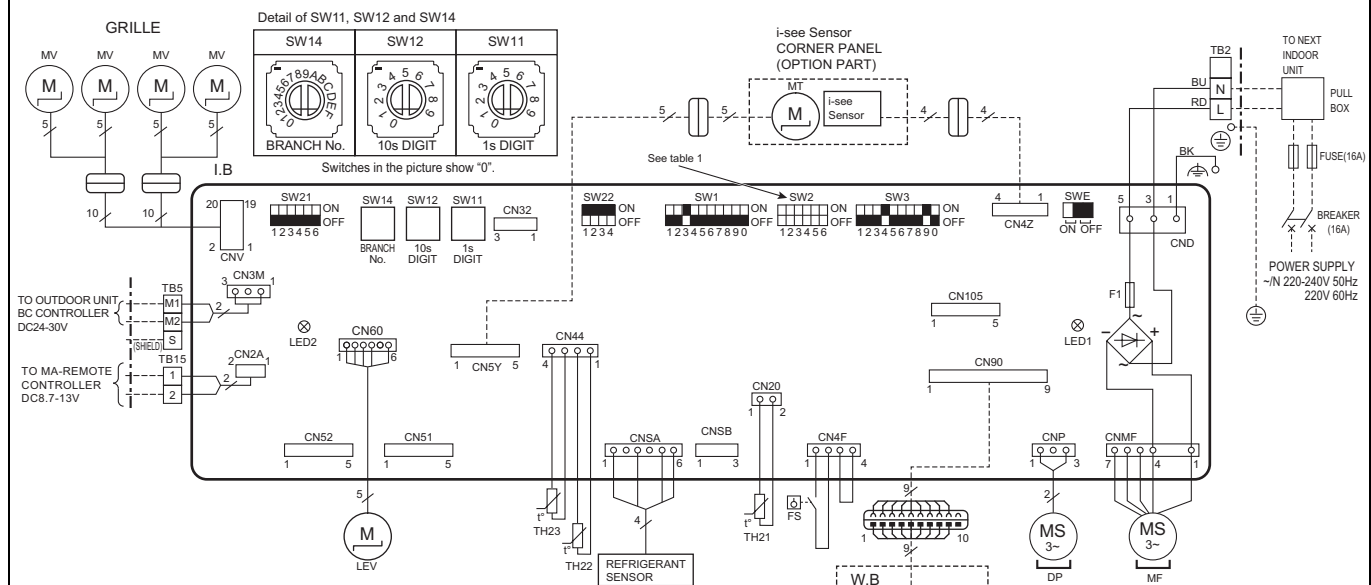
PLFY-MS15, 20, 25, 32, 40, 50VFM-E



(mm)[in]

Model name	X	Y	Z
PLFY-MS15VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]
PLFY-MS20VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]
PLFY-MS25VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]
PLFY-MS32VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]
PLFY-MS40VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]
PLFY-MS50VFM-E	150 [5-29/32]	260 [10-1/4]	105 [4-5/32]

PLFY-MS15, 20, 25, 32, 40, 50VFM-E



[LEGEND]

SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD
CN32	CONNECTOR REMOTE SWITCH
CN51	CENTRALLY CONTROL
CN52	REMOTE INDICATION
CN105	IT TERMINAL
F1	FUSE(T6.3AL 250V)
LED1	MAIN POWER SUPPLY (I.B)
LED2	POWER SUPPLY FOR MA-REMOTE CONTROLLER
SW1	SWITCH MODE SELECTION
SW2	CAPACITY CODE
SW3	MODE SELECTION
SW11	ADDRESS SETTING 1s DIGIT
SW12	ADDRESS SETTING 10s DIGIT
SW14	BRANCH No.
SW21	CEILING HEIGHT SELECTOR
SW22	PAIR NO. SETTING
SWE	DRAIN PUMP(TEST MODE)
DP	DRAIN PUMP
LEV	LINEAR EXPANSION VALVE
MF	FAN MOTOR
MV	VANE MOTOR
FS	DRAIN FLOAT SWITCH
TB2	TERMINAL POWER SUPPLY
TB5	BLOCK TRANSMISSION
TB15	MA-REMOTE CONTROLLER
TH21	THERMISTOR ROOM TEMP. DETECTION
TH22	PIPE TEMP. DETECTION / LIQUID
TH23	PIPE TEMP. DETECTION / GAS
OPTIONAL PARTS	
W.B	PCB FOR WIRELESS REMOTE CONTROLLER
BZ	BUZZER
LED1	LED (OPERATION INDICATION : GREEN)
LED2	LED (PREPARATION FOR HEATING : ORANGE)
RU	RECEIVING UNIT
SW1	EMERGENCY OPERATION(HEAT)
SW2	EMERGENCY OPERATION(COOL)
MT	i-see Sensor MOTOR

Notes:

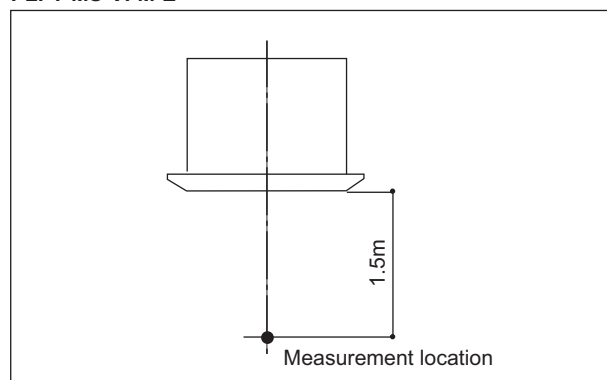
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15.
(Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram are, : terminal block, : connector.
6. The setting of the SW2 dip switches differs in the capacity. For the detail, see table 1.
7. Make sure to turn off the indoor and the outdoor units before replacing indoor controller board.
8. The black square (■) in the wiring diagram indicates a switch position.

<Table 1> SW2 (CAPACITY CODE)

MODELS	SW2	MODELS	SW2
15	ON OFF	32	ON OFF
20	ON OFF	40	ON OFF
25	ON OFF	50	ON OFF

5-1. Sound levels

PLFY-MS-VFM-E



* Measured in anechoic room.

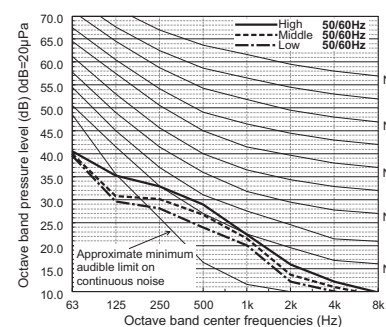
Sound level at anechoic room : Low-Mid-High

	Sound level dB (A)
PLFY-MS15VFM-E	26-28-30
PLFY-MS20VFM-E	26-29-31
PLFY-MS25VFM-E	26-30-33
PLFY-MS32VFM-E	26-30-34
PLFY-MS40VFM-E	28-33-39
PLFY-MS50VFM-E	33-39-43

5-2. NC curves

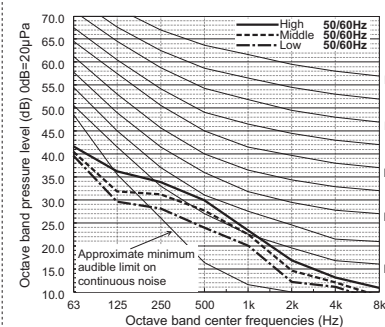
PLFY-MS15VFM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



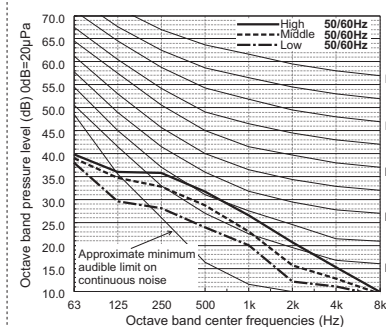
PLFY-MS20VFM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



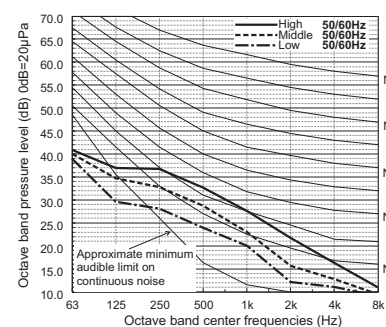
PLFY-MS25VFM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



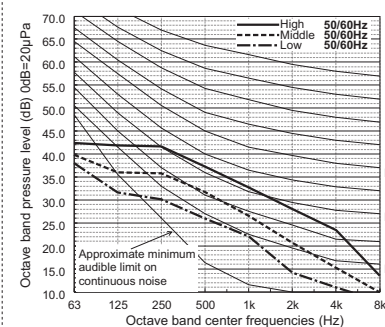
PLFY-MS32VFM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



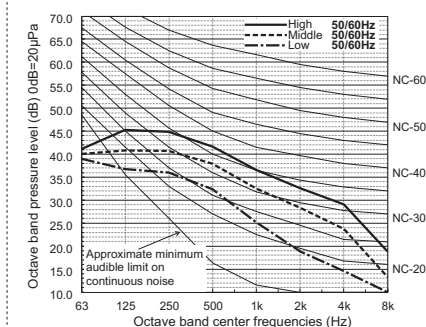
PLFY-MS40VFM-E

External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



PLFY-MS50VFM-E

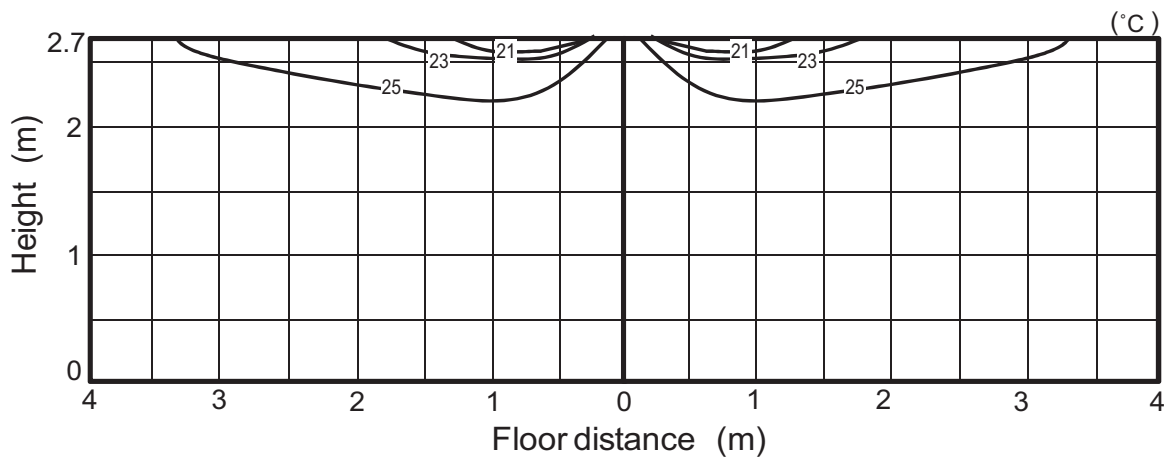
External Static Pressure: 0Pa [0.00in.WG]
Power Source: 220,230,240V, 50Hz/220V, 60Hz



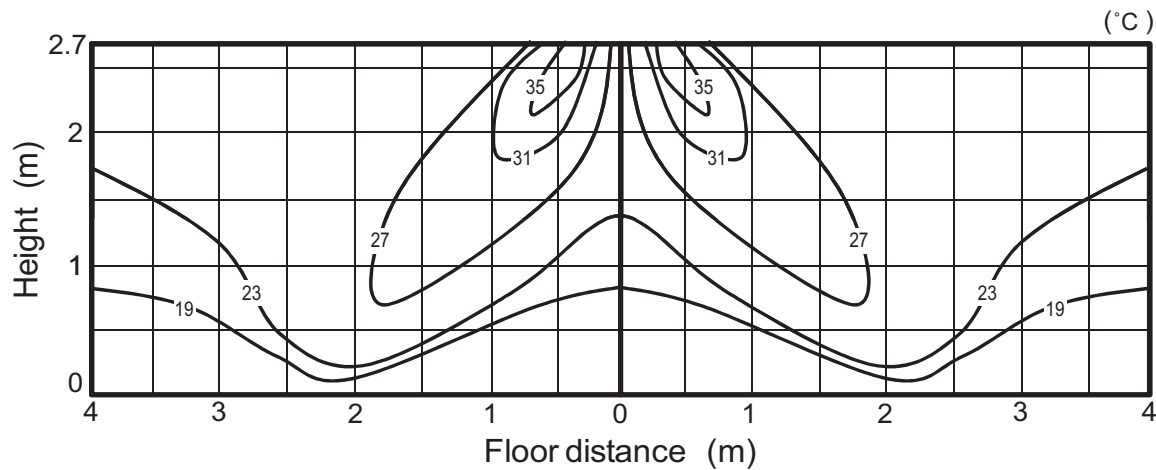
6-1. Temperature distributions

PLFY-MS15-50VFM-E

<Cooling mode>
Horizontal
Ceiling height : 2.7m



<Heating mode>
Downward
Ceiling height : 2.7m



Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

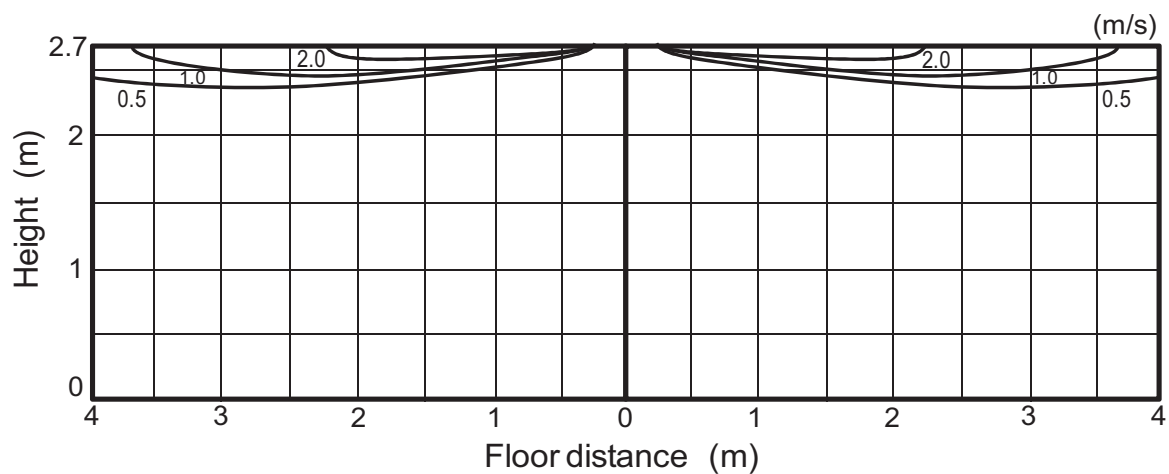
6-2. Airflow distributions

PLFY-MS15-50VFM-E

<Cooling mode>

Horizontal

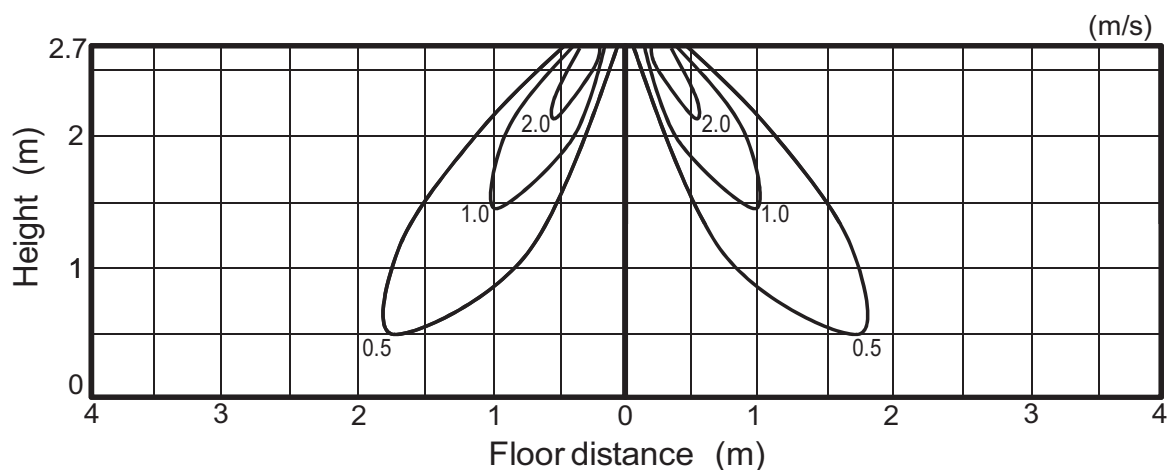
Ceiling height : 2.7m



<Heating mode>

Downward

Ceiling height : 2.7m



Note : These figures show typical airflow distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)
IFM (Indoor Fan Motor), Output (Fan motor rated output)

Model name	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A)	Output (kW)	FLA(A)
PLFY-MS15VFM-E	220-240V/50Hz 220V/60Hz	Max.: 264V Min.: 198V	0.27	0.05	0.21
PLFY-MS20VFM-E			0.28	0.05	0.22
PLFY-MS25VFM-E			0.29	0.05	0.23
PLFY-MS32VFM-E			0.03	0.05	0.24
PLFY-MS40VFM-E			0.35	0.05	0.28
PLFY-MS50VFM-E			0.50	0.05	0.40

PLFY-MS-VFM-E

8-1. Optional parts line up for the Indoor unit

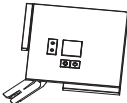
	Description	Model
PLFY-MS-VFM-E	3D i-see Sensor corner panel	PAC-SF1ME-E
	Wireless signal receiver	PAR-SF9FA-E

8-2. 3D i-see Sensor corner panel

3D i-see Sensor provides comfortable space as it detects the floor temperature to prevent spotty temperature. And that enables the unit to save energy. Attention Make sure that there are no gaps between the unit and the grille, and the grille and ceiling. ※ It may cause dew dripping.			
Item	3D i-see Sensor corner panel	Plastic fastener	
Quantity	1	2	
Shape			

Detailed installation information should be referred to its Installation Manual.

8-3. Wireless signal receiver

Wireless signal receiver PAR-SF9FA-E is necessary for using wireless remote controller PAR-SF9FA-E is a corner panel with the signal receiver for wireless remote controller.		
Item	Wireless signal receiver	
Quantity	1	
Shape		

Detailed installation information should be referred to its Installation Manual.

PEFY-MS-VMA(L)-A

1. SPECIFICATIONS 2 - 32

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7. ELECTRICAL CHARACTERISTICS..... 2 - 63

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 8-1. Optional parts line up for the Indoor unit..... 2 - 64

 8-2. Filter box 2 - 64

 8-3. Plasma Quad Connect..... 2 - 65

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model				PEFY-MS20VMA-A	PEFY-MS25VMA-A	PEFY-MS32VMA-A	PEFY-MS40VMA-A
Power source				1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz
Cooling capacity (Nominal)		*1	kW	2.2	2.8	3.6	4.5
		*1	BTU/h	7,500	9,600	12,300	15,400
		*2	Power input	kW	0.039	0.039	0.060
		*2	Current input	A	0.34-0.33-0.32	0.50-0.48-0.46	0.70-0.67-0.64
Heating capacity (Nominal)		*3	kW	2.5	3.2	4.0	5.0
		*3	BTU/h	8,500	10,900	13,600	17,100
		*2	Power input	kW	0.037	0.037	0.058
		*2	Current input	A	0.34-0.33-0.32	0.50-0.48-0.46	0.70-0.67-0.64
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension H x W x D			mm	250 x 700 x 732	250 x 700 x 732	250 x 700 x 732	250 x 900 x 732
			in.	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 27-9/16 x 28-7/8	9-7/8 x 35-7/16 x 28-7/8
Net weight			kg (lbs)	21.0 (46.5)	21.0 (46.5)	21.0 (46.5)	25.0 (55.0)
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity			Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 1	Sirocco fan x 2
	*4	External static press.	Pa	35 - <50> - <70> - <100> - <150>	35 - <50> - <70> - <100> - <150>	35 - <50> - <70> - <100> - <150>	35 - <50> - <70> - <100> - <150>
			mmH ₂ O	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	3.6 - <5.1> - <7.1> - <10.2> - <15.3>
	Motor Type			DC motor	DC motor	DC motor	DC motor
	Motor output		kW	0.085	0.085	0.085	0.121
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor
	*2	Air flow rate		(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)
		Cooling	m ³ /min	6.0 - 7.5 - 8.5 - 10	6.0 - 7.5 - 8.5 - 10	7.4 - 9.0 - 10.5 - 12.5	10.0 - 11.5 - 13.5 - 19.0
			L/s	100 - 125 - 142 - 166	100 - 125 - 142 - 166	123 - 150 - 175 - 208	166 - 191 - 225 - 316
			cfm	212 - 265 - 300 - 353	212 - 265 - 300 - 353	261 - 317 - 370 - 441	353 - 406 - 476 - 670
		Heating	m ³ /min	6.0 - 7.5 - 8.5 - 10	6.0 - 7.5 - 8.5 - 10	7.4 - 9.0 - 10.5 - 12.5	10.0 - 11.5 - 13.5 - 19.0
			L/s	100 - 125 - 142 - 166	100 - 125 - 142 - 166	123 - 150 - 175 - 208	166 - 191 - 225 - 316
	cfm		212 - 265 - 300 - 353	212 - 265 - 300 - 353	261 - 317 - 370 - 441	353 - 406 - 476 - 670	
	Sound pressure level (measured in anechoic room)				(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)
*5	Cooling		dB <A>	21.5-23.0-26.5-30.0	21.5-23.0-26.5-30.0	24.0-28.0-31.5-35.5	23.5-25.5-28.5-37.0
	Heating		dB <A>	21.5-23.0-26.5-30.0	21.5-23.0-26.5-30.0	24.0-28.0-31.5-35.5	23.5-25.5-28.5-37.0
Insulation material				EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.
Protection device				Fuse	Fuse	Fuse	Fuse
Refrigerant control device				LEV	LEV	LEV	LEV
Connectable outdoor unit				R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI
Refrigerant piping diameter	Liquid	mm (in.)	6.35 (1/4)Braze	6.35 (1/4)Braze	6.35 (1/4)Braze	6.35 (1/4)Braze	
	Gas	mm (in.)	12.7 (1/2)Braze	12.7 (1/2)Braze	12.7 (1/2)Braze	12.7 (1/2)Braze	
Field drain pipe size			mm (in.)	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")
Drawing	External			KB94C6ZA	KB94C6ZA	KB94C6ZA	KB94C6ZA
	Wiring			KB94C6Z9	KB94C6Z9	KB94C6Z9	KB94C6Z9
	Refrigerant cycle			-	-	-	-
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory			Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band
Optional parts	Filter box			PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE91TB-E	PAC-KE92TB-E
	Plasma Quad Connect			MAC-100FT-E	MAC-100FT-E	MAC-100FT-E	MAC-100FT-E
	PQ attachment (Rear inlet)			PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR
	PQ attachment (Bottom inlet)			PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU
	PQ box			PAC-KE91PTB-E	PAC-KE91PTB-E	PAC-KE91PTB-E	PAC-KE92PTB-E
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.			

Notes:	Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°F WB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	BTU/h =kW x 3,412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.	cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°F WB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.	
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.	*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model				PEFY-MS50VMA-A	PEFY-MS63VMA-A	PEFY-MS71VMA-A	PEFY-MS80VMA-A	
Power source				1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	
Cooling capacity (Nominal)	*1	kW		5.6	7.1	8.0	9.0	
		BTU/h		19,100	24,200	27,300	30,700	
	*2	Power input		0.131	0.139	0.165	0.165	
		Current input		A	0.94-0.90-0.86	0.99-0.95-0.91	1.16-1.11-1.06	1.16-1.11-1.06
Heating capacity (Nominal)	*3	kW		6.3	8.0	9.0	10.0	
		BTU/h		21,500	27,300	30,700	34,100	
	*2	Power input		0.129	0.231	0.216	0.216	
		Current input		A	0.94-0.90-0.86	1.55-1.48-1.42	1.47-1.41-1.35	1.47-1.41-1.35
	External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate
External dimension H x W x D			mm	250 x 1,100 x 732	250 x 1,100 x 732	250 x 1,400 x 732	250 x 1,400 x 732	
			in.	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	
Net weight			kg (lbs)	30.0 (66.0)	30.0 (66.0)	37 (82)	37 (82)	
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	
FAN	Type x Quantity			Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 3	Sirocco fan x 3	
	*4	External static press.		Pa	35 - <50> - <70> - <100> - <150>	35 - <50> - <70> - <100> - <150>	40 - <50> - <70> - <100> - <150>	40 - <50> - <70> - <100> - <150>
				mmH ₂ O	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	4.1 - <5.1> - <7.1> - <10.2> - <15.3>	4.1 - <5.1> - <7.1> - <10.2> - <15.3>
		Motor Type			DC motor	DC motor	DC motor	DC motor
	Motor output		kW	0.121	0.121	0.300	0.300	
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	
	*2	Air flow rate			(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)
			Cooling	m ³ /min	12.0 - 14.5 - 16.5 - 25.6	13.5 - 16.0 - 19.2 - 26.2	14.5 - 18.0 - 21.0 - 33.1	14.5 - 18.0 - 21.0 - 33.1
				L/s	208 - 241 - 275 - 426	225 - 266 - 320 - 436	241 - 300 - 350 - 518	241 - 300 - 350 - 518
				cfm	441 - 511 - 582 - 903	476 - 564 - 677 - 925	511 - 635 - 741 - 1098	511 - 635 - 741 - 1098
			Heating	m ³ /min	12.0 - 14.5 - 16.5 - 25.6	13.5 - 16.0 - 19.2 - 31.0	14.5 - 18.0 - 21.0 - 36.6	14.5 - 18.0 - 21.0 - 36.6
				L/s	208 - 241 - 275 - 426	225 - 266 - 320 - 516	241 - 300 - 350 - 610	241 - 300 - 350 - 610
	cfm			441 - 511 - 582 - 903	476 - 564 - 677 - 1094	511 - 635 - 741 - 1292	511 - 635 - 741 - 1292	
Sound pressure level (measured in anechoic room)				(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
*5	Cooling		dB <A>	22.0-24.0-26.5-37.0	23.0-26.0-30.0-37.5	22.0-25.0-27.5-38.5	22.0-25.0-27.5-38.5	
	Heating		dB <A>	22.0-24.0-26.5-37.0	23.0-26.0-30.0-41.5	22.0-25.0-27.5-40.5	22.0-25.0-27.5-40.5	
Insulation material				EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	
Protection device				Fuse	Fuse	Fuse	Fuse	
Refrigerant control device				LEV	LEV	LEV	LEV	
Connectable outdoor unit				R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI	
Refrigerant piping diameter	Liquid	mm (in.)	6.35 (1/4)Braze	9.52 (3/8)Braze	9.52 (3/8)Braze	9.52 (3/8)Braze		
	Gas	mm (in.)	12.7 (1/2)Braze	15.88 (5/8)Braze	15.88 (5/8)Braze	15.88 (5/8)Braze		
Field drain pipe size			mm (in.)	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")	
Drawing	External			KB94C6ZA	KB94C6ZA	KB94C6ZA	KB94C6ZA	
	Wiring			KB94C6Z9	KB94C6Z9	KB94C6Z9	KB94C6Z9	
	Refrigerant cycle			-	-	-	-	
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	
	Accessory			Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	
Optional parts	Filter box			PAC-KE93TB-E	PAC-KE93TB-E	PAC-KE94TB-E	PAC-KE94TB-E	
	Plasma Quad Connect			MAC-100FT-E	MAC-100FT-E	MAC-100FT-E	MAC-100FT-E	
	PQ attachment (Rear inlet)			PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR	
	PQ attachment (Bottom inlet)			PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU	
	PQ box			PAC-KE93PTB-E	PAC-KE93PTB-E	PAC-KE94PTB-E	PAC-KE94PTB-E	
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.				

Notes:	Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°FWB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	BTU/h =kW x 3,412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.	cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°FWB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.	*Above specification data is subject to rounding variation.
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.	

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model			PEFY-MS100VMA-A	PEFY-MS125VMA-A	PEFY-MS140VMA-A		
Power source			1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz		
Cooling capacity (Nominal)	*1	kW	11.2	14.0	16.0		
	*1	BTU/h	38,200	47,800	54,600		
	*2	Power input	kW	0.211	0.218	0.282	
	*2	Current input	A	1.44-1.38-1.32	1.40-1.33-1.28	1.84-1.76-1.69	
Heating capacity (Nominal)	*3	kW	12.5	16.0	18.0		
	*3	BTU/h	42,700	54,600	61,400		
	*2	Power input	kW	0.209	0.216	0.280	
	*2	Current input	A	1.44-1.38-1.32	1.40-1.33-1.28	1.84-1.76-1.69	
External finish			Galvanized steel plate	Galvanized steel plate	Galvanized steel plate		
External dimension H x W x D		mm	250 x 1,400 x 732	250 x 1,400 x 732	250 x 1,600 x 732		
		in.	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 63 x 28-7/8		
Net weight		kg (lbs)	37 (82)	38 (84)	42 (93)		
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity		Sirocco fan x 3	Sirocco fan x 3	Sirocco fan x 3		
	*4	External static press.	Pa	40 - <50> - <70> - <100> - <150>	<40> - 50 - <70> - <100> - <150>	<40> - 50 - <70> - <100> - <150>	
			mmH ₂ O	4.1 - <5.1> - <7.1> - <10.2> - <15.3>	<4.1> - 5.1 - <7.1> - <10.2> - <15.3>	<4.1> - 5.1 - <7.1> - <10.2> - <15.3>	
	Motor Type		DC motor	DC motor	DC motor		
	Motor output		kW	0.300	0.300	0.300	
	Driving mechanism		Direct-driven by motor	Direct-driven by motor	Direct-driven by motor		
	*2	Air flow rate		(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
		Cooling	m ³ /min	23.0 - 28.0 - 32.0 - 37.0	25.5 - 31.0 - 34.0 - 37.0	29.5 - 35.5 - 40.0 - 44.0	
			L/s	383 - 466 - 533 - 616	425 - 516 - 566 - 616	491 - 591 - 666 - 733	
			cfm	812 - 988 - 1129 - 1306	900 - 1094 - 1200 - 1306	1041 - 1253 - 1412 - 1553	
		Heating	m ³ /min	23.0 - 28.0 - 32.0 - 37.0	25.5 - 31.0 - 34.0 - 37.0	29.5 - 35.5 - 40.0 - 44.0	
			L/s	383 - 466 - 533 - 616	425 - 516 - 566 - 616	491 - 591 - 666 - 733	
	cfm		812 - 988 - 1129 - 1306	900 - 1094 - 1200 - 1306	1041 - 1253 - 1412 - 1553		
	Sound pressure level (measured in anechoic room)			(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
	*5	Cooling	dB <A>	29.5-34.0-37.5-40.0	31.5-36.5-38.5-40.5	34.0-38.0-40.5-43.0	
Heating		dB <A>	29.5-34.0-37.5-40.0	31.5-36.5-38.5-40.5	34.0-38.0-40.5-43.0		
Insulation material			EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam		
Air filter			PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.		
Protection device			Fuse	Fuse	Fuse		
Refrigerant control device			LEV	LEV	LEV		
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI		
Refrigerant piping diameter	Liquid	mm (in.)	9.52 (3/8)Brazed	9.52 (3/8)Brazed	9.52 (3/8)Brazed		
	Gas	mm (in.)	15.88 (5/8)Brazed	15.88 (5/8)Brazed	15.88 (5/8)Brazed		
Field drain pipe size		mm (in.)	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")		
Drawing	External		KB94C6ZA	KB94C6ZA	KB94C6ZA		
	Wiring		KB94C6Z9	KB94C6Z9	KB94C6Z9		
	Refrigerant cycle		-	-	-		
Standard attachment	Document		Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book		
	Accessory		Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band		
Optional parts	Filter box		PAC-KE94TB-E	PAC-KE94TB-E	PAC-KE95TB-E		
	Plasma Quad Connect		MAC-100FT-E	MAC-100FT-E	MAC-100FT-E		
	PQ attachment (Rear inlet)		PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR		
	PQ attachment (Bottom inlet)		PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU		
	PQ box		PAC-KE94PTB-E	PAC-KE94PTB-E	PAC-KE95PTB-E		
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.				

Notes:	Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°FWB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	BTU/h =kW x 3,412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.	cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°FWB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.	*Above specification data is subject to rounding variation.
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.	

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model				PEFY-MS20VMAL-A		PEFY-MS25VMAL-A		PEFY-MS32VMAL-A		PEFY-MS40VMAL-A		
Power source				1-phase 220-230-240 V 50 Hz		1-phase 220-230-240 V 50 Hz		1-phase 220-230-240 V 50 Hz		1-phase 220-230-240 V 50 Hz		
Cooling capacity (Nominal)		*1	kW	2.2		2.8		3.6		4.5		
		*1	BTU/h	7,500		9,600		12,300		15,400		
		*2	Power input	kW	0.037		0.037		0.058		0.085	
		*2	Current input	A	0.34-0.33-0.32		0.34-0.33-0.32		0.50-0.48-0.46		0.70-0.67-0.64	
Heating capacity (Nominal)		*3	kW	2.5		3.2		4.0		5.0		
		*3	BTU/h	8,500		10,900		13,600		17,100		
		*2	Power input	kW	0.037		0.037		0.058		0.085	
		*2	Current input	A	0.34-0.33-0.32		0.34-0.33-0.32		0.50-0.48-0.46		0.70-0.67-0.64	
External finish				Galvanized steel plate		Galvanized steel plate		Galvanized steel plate		Galvanized steel plate		
External dimension H x W x D			mm	250 x 700 x 732		250 x 700 x 732		250 x 700 x 732		250 x 900 x 732		
			in.	9-7/8 x 27-9/16 x 28-7/8		9-7/8 x 27-9/16 x 28-7/8		9-7/8 x 27-9/16 x 28-7/8		9-7/8 x 35-7/16 x 28-7/8		
Net weight			kg (lbs)	20.0 (44.0)		20.0 (44.0)		20.5 (45.0)		24.5 (54.0)		
Heat exchanger				Cross fin (Aluminum fin and copper tube)		Cross fin (Aluminum fin and copper tube)		Cross fin (Aluminum fin and copper tube)		Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity			Sirocco fan x 1		Sirocco fan x 1		Sirocco fan x 1		Sirocco fan x 2		
	*4	External static press.	Pa	35 - <50> - <70> - <100> - <150>		35 - <50> - <70> - <100> - <150>		35 - <50> - <70> - <100> - <150>		35 - <50> - <70> - <100> - <150>		
			mmH ₂ O	3.6 - <5.1> - <7.1> - <10.2> - <15.3>		3.6 - <5.1> - <7.1> - <10.2> - <15.3>		3.6 - <5.1> - <7.1> - <10.2> - <15.3>		3.6 - <5.1> - <7.1> - <10.2> - <15.3>		
		Motor Type		DC motor		DC motor		DC motor		DC motor		
	Motor output		kW	0.085		0.085		0.085		0.121		
	Driving mechanism			Direct-driven by motor		Direct-driven by motor		Direct-driven by motor		Direct-driven by motor		
	*2	Air flow rate		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		
		Cooling	m ³ /min	6.0 - 7.5 - 8.5 - 10		6.0 - 7.5 - 8.5 - 10		7.4 - 9.0 - 10.5 - 12.5		10.0 - 11.5 - 13.5 - 19.0		
			L/s	100 - 125 - 142 - 166		100 - 125 - 142 - 166		123 - 150 - 175 - 208		166 - 191 - 225 - 316		
			cfm	212 - 265 - 300 - 353		212 - 265 - 300 - 353		261 - 317 - 370 - 441		353 - 406 - 476 - 670		
		Heating	m ³ /min	6.0 - 7.5 - 8.5 - 10		6.0 - 7.5 - 8.5 - 10		7.4 - 9.0 - 10.5 - 12.5		10.0 - 11.5 - 13.5 - 19.0		
			L/s	100 - 125 - 142 - 166		100 - 125 - 142 - 166		123 - 150 - 175 - 208		166 - 191 - 225 - 316		
			cfm	212 - 265 - 300 - 353		212 - 265 - 300 - 353		261 - 317 - 370 - 441		353 - 406 - 476 - 670		
	Sound pressure level (measured in anechoic room)				(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)	
	*5	Cooling		dB <A>	21.5-23.0-26.5-30.0		21.5-23.0-26.5-30.0		24.0-28.0-31.5-35.5		23.5-25.5-28.5-37.0	
		Heating		dB <A>	21.5-23.0-26.5-30.0		21.5-23.0-26.5-30.0		24.0-28.0-31.5-35.5		23.5-25.5-28.5-37.0	
Insulation material				EPS, Polystyrene foam, Urethane foam		EPS, Polystyrene foam, Urethane foam		EPS, Polystyrene foam, Urethane foam		EPS, Polystyrene foam, Urethane foam		
Air filter				PP honeycomb fabric.		PP honeycomb fabric.		PP honeycomb fabric.		PP honeycomb fabric.		
Protection device				Fuse		Fuse		Fuse		Fuse		
Refrigerant control device				LEV		LEV		LEV		LEV		
Connectable outdoor unit				R32 CITY MULTI		R32 CITY MULTI		R32 CITY MULTI		R32 CITY MULTI		
Refrigerant piping diameter	Liquid	mm (in.)	6.35 (1/4)Braze		6.35 (1/4)Braze		6.35 (1/4)Braze		6.35 (1/4)Braze			
	Gas	mm (in.)	12.7 (1/2)Braze		12.7 (1/2)Braze		12.7 (1/2)Braze		12.7 (1/2)Braze			
Field drain pipe size			mm (in.)	O.D.32 (1-1/4")		O.D.32 (1-1/4")		O.D.32 (1-1/4")		O.D.32 (1-1/4")		
Drawing	External			KB94C6ZB		KB94C6ZB		KB94C6ZB		KB94C6ZB		
	Wiring			KB94C6Z9		KB94C6Z9		KB94C6Z9		KB94C6Z9		
	Refrigerant cycle			-		-		-		-		
Standard attachment	Document			Installation Manual, Instruction Book		Installation Manual, Instruction Book		Installation Manual, Instruction Book		Installation Manual, Instruction Book		
	Accessory			Washer, Drain hose, Tie band		Washer, Drain hose, Tie band		Washer, Drain hose, Tie band		Washer, Drain hose, Tie band		
Optional parts	Filter box			PAC-KE91TB-E		PAC-KE91TB-E		PAC-KE91TB-E		PAC-KE92TB-E		
	Plasma Quad Connect			MAC-100FT-E		MAC-100FT-E		MAC-100FT-E		MAC-100FT-E		
	PQ attachment (Rear inlet)			PAC-HA31PAR		PAC-HA31PAR		PAC-HA31PAR		PAC-HA31PAR		
	PQ attachment (Bottom inlet)			PAC-HA31PAU		PAC-HA31PAU		PAC-HA31PAU		PAC-HA31PAU		
	PQ box			PAC-KE91PTB-E		PAC-KE91PTB-E		PAC-KE91PTB-E		PAC-KE92PTB-E		
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.								
				* Due to continuing improvement, above specifications may be subject to change without notice.								

Notes:	Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°FWB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	BTU/h =kW x 3.412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.	cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°FWB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.	
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.	*Above specification data is subject to rounding variation.

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model			PEFY-MS50VMAL-A	PEFY-MS63VMAL-A	PEFY-MS71VMAL-A	PEFY-MS80VMAL-A		
Power source			1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz		
Cooling capacity (Nominal)	*1	kW	5.6	7.1	8.0	9.0		
	*1	BTU/h	19,100	24,200	27,300	30,700		
	*2	Power input	kW	0.129	0.163	0.163		
	*2	Current input	A	0.94-0.90-0.86	0.99-0.95-0.91	1.16-1.11-1.06		
Heating capacity (Nominal)	*3	kW	6.3	8.0	9.0	10.0		
	*3	BTU/h	21,500	27,300	30,700	34,100		
	*2	Power input	kW	0.129	0.216	0.216		
	*2	Current input	A	0.94-0.90-0.86	1.55-1.48-1.42	1.47-1.41-1.35		
External finish			Galvanized steel plate	Galvanized steel plate	Galvanized steel plate	Galvanized steel plate		
External dimension H x W x D		mm	250 x 1,100 x 732	250 x 1,100 x 732	250 x 1,400 x 732	250 x 1,400 x 732		
		in.	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 43-5/16 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8		
Net weight		kg (lbs)	29.0 (64.0)	29.0 (64.0)	36 (80)	36 (80)		
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity		Sirocco fan x 2	Sirocco fan x 2	Sirocco fan x 3	Sirocco fan x 3		
	*4	External static press.	Pa	35 - <50> - <70> - <100> - <150>	40 - <50> - <70> - <100> - <150>	40 - <50> - <70> - <100> - <150>		
			mmH ₂ O	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	3.6 - <5.1> - <7.1> - <10.2> - <15.3>	4.1 - <5.1> - <7.1> - <10.2> - <15.3>		
	Motor Type		DC motor	DC motor	DC motor	DC motor		
	Motor output		kW	0.121	0.121	0.300	0.300	
	Driving mechanism		Direct-driven by motor	Direct-driven by motor	Direct-driven by motor	Direct-driven by motor		
	*2	Air flow rate	(Low-Mid2-Mid1-High)		(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
			Cooling	m ³ /min	12.0 - 14.5 - 16.5 - 25.6	13.5 - 16.0 - 19.2 - 26.2	14.5 - 18.0 - 21.0 - 33.1	14.5 - 18.0 - 21.0 - 33.1
				L/s	208 - 241 - 275 - 426	225 - 266 - 320 - 436	241 - 300 - 350 - 518	241 - 300 - 350 - 518
				cfm	441 - 511 - 582 - 903	476 - 564 - 677 - 925	511 - 635 - 741 - 1098	511 - 635 - 741 - 1098
			Heating	m ³ /min	12.0 - 14.5 - 16.5 - 25.6	13.5 - 16.0 - 19.2 - 31.0	14.5 - 18.0 - 21.0 - 36.6	14.5 - 18.0 - 21.0 - 36.6
				L/s	208 - 241 - 275 - 426	225 - 266 - 320 - 516	241 - 300 - 350 - 610	241 - 300 - 350 - 610
	cfm	441 - 511 - 582 - 903		476 - 564 - 677 - 1094	511 - 635 - 741 - 1292	511 - 635 - 741 - 1292		
	Sound pressure level (measured in anechoic room)			(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
*5	Cooling	dB <A>	22.0-24.0-26.5-37.0	23.0-26.0-30.0-37.5	22.0-25.0-27.5-38.5	22.0-25.0-27.5-38.5		
	Heating	dB <A>	22.0-24.0-26.5-37.0	23.0-26.0-30.0-41.5	22.0-25.0-27.5-40.5	22.0-25.0-27.5-40.5		
Insulation material			EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam		
Air filter			PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.		
Protection device			Fuse	Fuse	Fuse	Fuse		
Refrigerant control device			LEV	LEV	LEV	LEV		
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI		
Refrigerant piping diameter	Liquid	mm (in.)	6.35 (1/4)Braze	9.52 (3/8)Braze	9.52 (3/8)Braze	9.52 (3/8)Braze		
	Gas	mm (in.)	12.7 (1/2)Braze	15.88 (5/8)Braze	15.88 (5/8)Braze	15.88 (5/8)Braze		
Field drain pipe size		mm (in.)	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")		
Drawing	External		KB94C6ZB	KB94C6ZB	KB94C6ZB	KB94C6ZB		
	Wiring		KB94C6Z9	KB94C6Z9	KB94C6Z9	KB94C6Z9		
	Refrigerant cycle		-	-	-	-		
Standard attachment	Document		Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book		
	Accessory		Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band		
Optional parts	Filter box		PAC-KE93TB-E	PAC-KE93TB-E	PAC-KE94TB-E	PAC-KE94TB-E		
	Plasma Quad Connect		MAC-100FT-E	MAC-100FT-E	MAC-100FT-E	MAC-100FT-E		
	PQ attachment (Rear inlet)		PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR		
	PQ attachment (Bottom inlet)		PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU		
	PQ box		PAC-KE93PTB-E	PAC-KE93PTB-E	PAC-KE94PTB-E	PAC-KE94PTB-E		
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specifications may be subject to change without notice.					

Notes:	Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°F WB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	BTU/h =kW x 3,412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.	cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°F WB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)	lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.	*Above specification data is subject to rounding variation.
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.	

1. SPECIFICATIONS

Ceiling concealed (Medium static pressure type)

Model				PEFY-MS100VMAL-A	PEFY-MS125VMAL-A	PEFY-MS140VMAL-A		
Power source				1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz	1-phase 220-230-240 V 50 Hz		
Cooling capacity (Nominal)	*1	kW		11.2	14.0	16.0		
		BTU/h		38,200	47,800	54,600		
	*2	Power input	kW	0.209	0.216	0.280		
	*2	Current input	A	1.44-1.38-1.32	1.40-1.33-1.28	1.84-1.76-1.69		
Heating capacity (Nominal)	*3	kW		12.5	16.0	18.0		
		BTU/h		42,700	54,600	61,400		
	*2	Power input	kW	0.209	0.216	0.280		
	*2	Current input	A	1.44-1.38-1.32	1.40-1.33-1.28	1.84-1.76-1.69		
External finish				Galvanized steel plate	Galvanized steel plate	Galvanized steel plate		
External dimension H x W x D			mm	250 x 1,400 x 732	250 x 1,400 x 732	250 x 1,600 x 732		
			in.	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 55-1/8 x 28-7/8	9-7/8 x 63 x 28-7/8		
Net weight			kg (lbs)	36 (80)	37 (82)	41 (91)		
Heat exchanger				Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)		
FAN	Type x Quantity			Sirocco fan x 3	Sirocco fan x 3	Sirocco fan x 3		
	*4	External static press.	Pa	40 - <50> - <70> - <100> - <150>	<40> - 50 - <70> - <100> - <150>	<40> - 50 - <70> - <100> - <150>		
			mmH ₂ O	4.1 - <5.1> - <7.1> - <10.2> - <15.3>	<4.1> - 5.1 - <7.1> - <10.2> - <15.3>	<4.1> - 5.1 - <7.1> - <10.2> - <15.3>		
	Motor Type			DC motor	DC motor	DC motor		
	Motor output		kW	0.300	0.300	0.300		
	Driving mechanism			Direct-driven by motor	Direct-driven by motor	Direct-driven by motor		
	*2	Air flow rate			(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	
		Cooling	m ³ /min	23.0 - 28.0 - 32.0 - 37.0	25.5 - 31.0 - 34.0 - 37.0	29.5 - 35.5 - 40.0 - 44.0		
			L/s	383 - 466 - 533 - 616	425 - 516 - 566 - 616	491 - 591 - 666 - 733		
			cfm	812 - 988 - 1129 - 1306	900 - 1094 - 1200 - 1306	1041 - 1253 - 1412 - 1553		
		Heating	m ³ /min	23.0 - 28.0 - 32.0 - 37.0	25.5 - 31.0 - 34.0 - 37.0	29.5 - 35.5 - 40.0 - 44.0		
			L/s	383 - 466 - 533 - 616	425 - 516 - 566 - 616	491 - 591 - 666 - 733		
			cfm	812 - 988 - 1129 - 1306	900 - 1094 - 1200 - 1306	1041 - 1253 - 1412 - 1553		
	Sound pressure level (measured in anechoic room)			(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)	(Low-Mid2-Mid1-High)		
	*5	Cooling	dB <A>	29.5-34.0-37.5-40.0	31.5-36.5-38.5-40.5	34.0-38.0-40.5-43.0		
		Heating	dB <A>	29.5-34.0-37.5-40.0	31.5-36.5-38.5-40.5	34.0-38.0-40.5-43.0		
Insulation material				EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam	EPS, Polystyrene foam, Urethane foam		
Air filter				PP honeycomb fabric.	PP honeycomb fabric.	PP honeycomb fabric.		
Protection device				Fuse	Fuse	Fuse		
Refrigerant control device				LEV	LEV	LEV		
Connectable outdoor unit				R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI		
Refrigerant piping diameter	Liquid	mm (in.)	9.52 (3/8)Braze	9.52 (3/8)Braze	9.52 (3/8)Braze			
	Gas	mm (in.)	15.88 (5/8)Braze	15.88 (5/8)Braze	15.88 (5/8)Braze			
Field drain pipe size			mm (in.)	O.D.32 (1-1/4")	O.D.32 (1-1/4")	O.D.32 (1-1/4")		
Drawing	External			KB94C6ZB	KB94C6ZB	KB94C6ZB		
	Wiring			KB94C6Z9	KB94C6Z9	KB94C6Z9		
	Refrigerant cycle			-	-	-		
Standard attachment	Document			Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book		
	Accessory			Washer, Drain hose, Tie band	Washer, Drain hose, Tie band	Washer, Drain hose, Tie band		
Optional parts	Filter box			PAC-KE94TB-E	PAC-KE94TB-E	PAC-KE95TB-E		
	Plasma Quad Connect			MAC-100FT-E	MAC-100FT-E	MAC-100FT-E		
	PQ attachment (Rear inlet)			PAC-HA31PAR	PAC-HA31PAR	PAC-HA31PAR		
	PQ attachment (Bottom inlet)			PAC-HA31PAU	PAC-HA31PAU	PAC-HA31PAU		
	PQ box			PAC-KE94PTB-E	PAC-KE94PTB-E	PAC-KE95PTB-E		
Remarks				* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.				
				* Due to continuing improvement, above specifications may be subject to change without notice.				

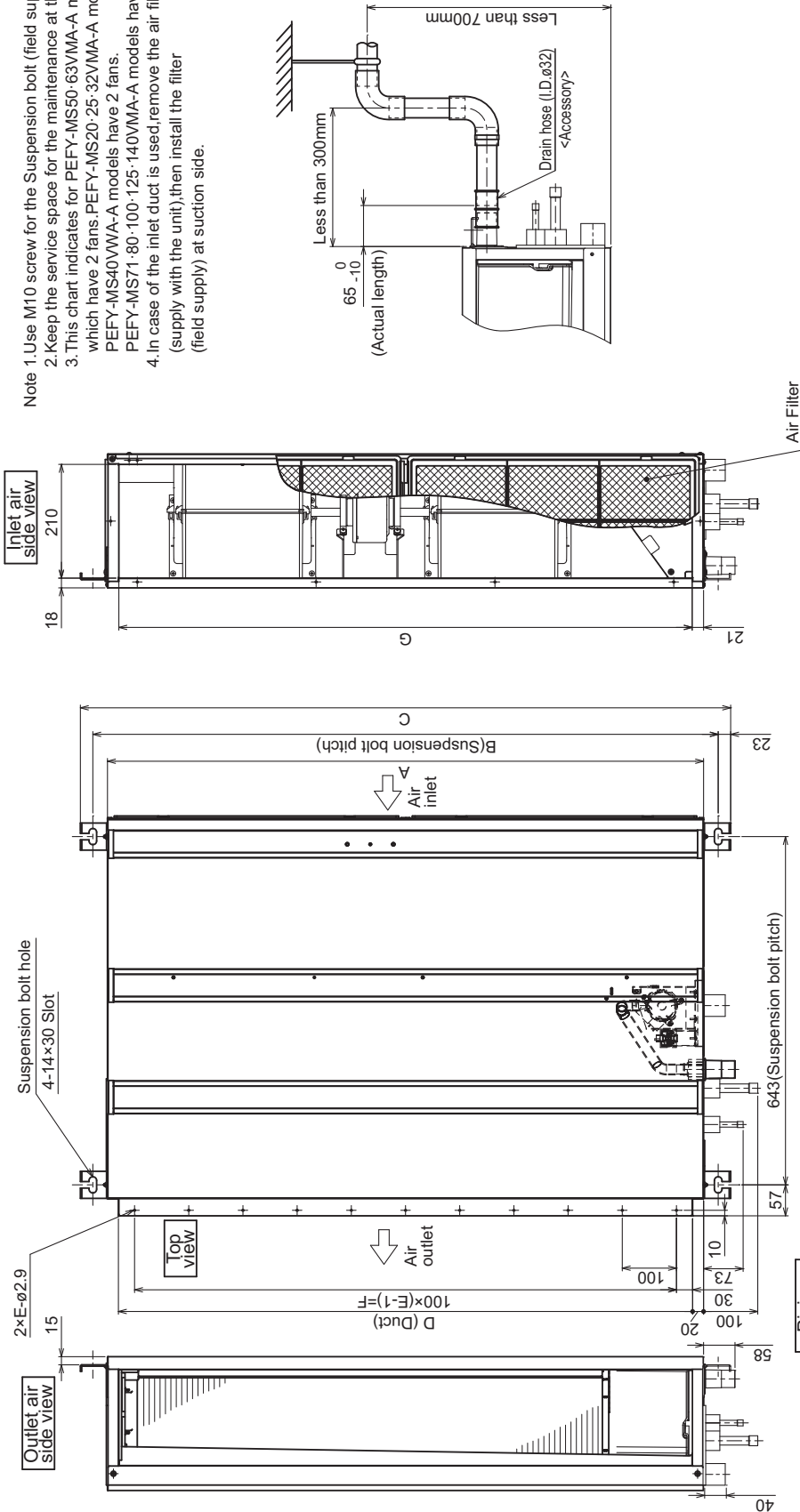
Notes:		Unit converter
1.Nominal cooling conditions Indoor:27°CDB/19°CWB (81°FDB/66°FWB), Outdoor:35°CDB (95°FDB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)		BTU/h =kW x 3,412
2.The values are measured at the factory setting of external static pressure. The Air flow rate is measured by the conventional method in JIS.		cfm =m ³ /min x 35.31
3.Nominal heating conditions Indoor:20°CDB (68°FDB), Outdoor:7°CDB/6°CWB (45°FDB/43°FWB) Pipe length:7.5m (24-9/16ft.), Level difference:0m (0ft.)		lbs =kg/0.4536
4.The factory setting of airflow mode and external static pressure mode is shown without < > . Refer to "Fan characteristics curves", according to the external static pressure, in DATA BOOK for the usable range of air flow rate.		
5.Measured in anechoic room with a 1 m air inlet duct and 2 m air outlet duct attached to the unit and 1.5 m below the unit, under the conditions shown in *2.		*Above specification data is subject to rounding variation.

PEFY-MS-VMA(L)-A

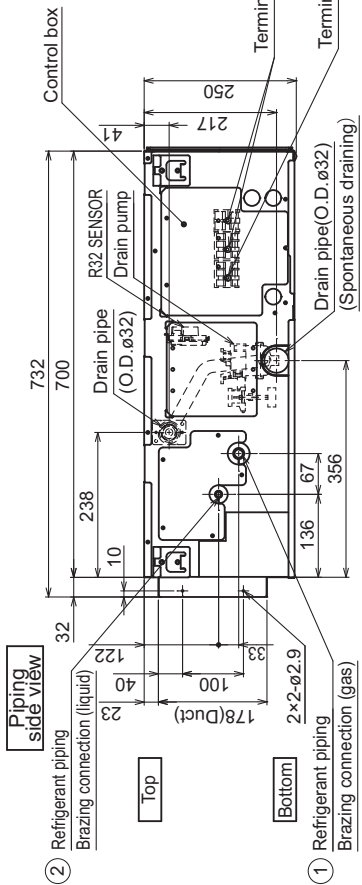
PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-A

Unit: mm

- Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-MS50-63VMA-A models, which have 2 fans. PEFY-MS20-25-32VMA-A models have 1 fan. PEFY-MS40VMA-A models have 2 fans.
4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.



Model	A	B	C	D	E	F	G	① Gas pipe	② Liquid pipe
PEFY-MS20,25,32VMA-A	700	754	800	660	7	600	658	ø12.7	ø6.35
PEFY-MS40VMA-A	900	954	1000	860	9	800	858	ø12.7	ø6.35
PEFY-MS50VMA-A	1100	1154	1200	1060	11	1000	1058	ø15.88	ø9.52
PEFY-MS63VMA-A	1100	1154	1200	1060	11	1000	1058	ø15.88	ø9.52
PEFY-MS71,80,100,125VMA-A	1400	1454	1500	1360	14	1300	1358	ø15.88	ø9.52
PEFY-MS140VMA-A	1600	1654	1700	1560	16	1500	1558	ø15.88	ø9.52



PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-A

Unit: mm

- [Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.
- (1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)
 - Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
 - (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)
 - (2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
 - (At least 20mm of space should be left below the unit as shown in Fig.3.)
 - Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
 - or
 - Create access door 4 below the control box and the unit as shown in Fig.5.

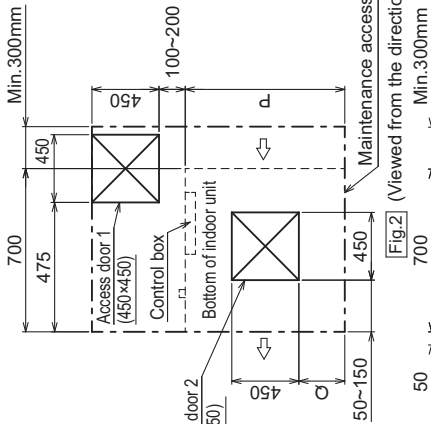
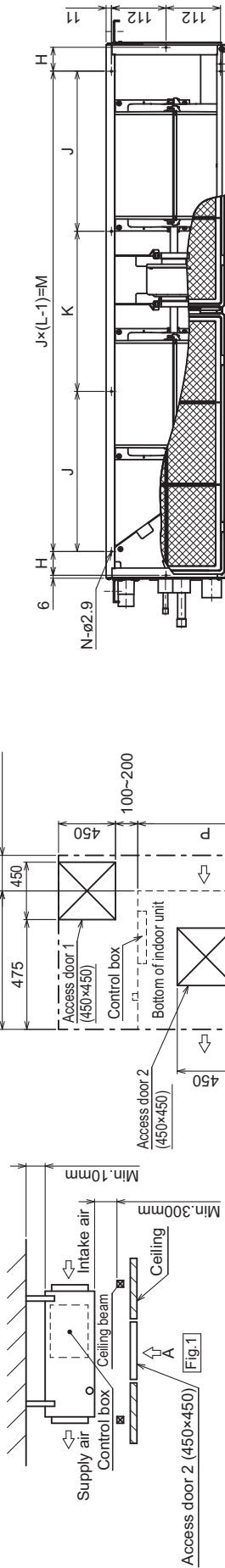


Fig.2 (Viewed from the direction of the arrow A)

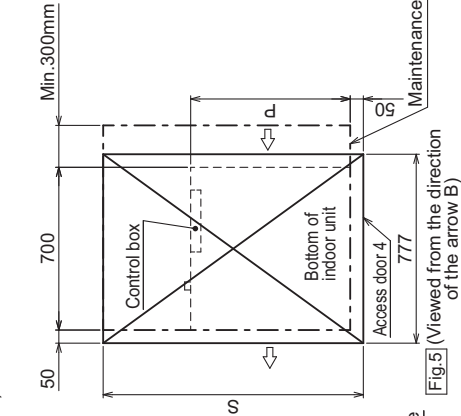
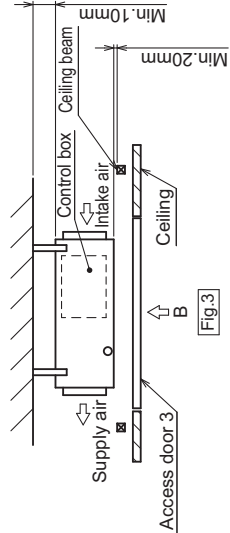


Fig.4 (Viewed from the direction of the arrow B)

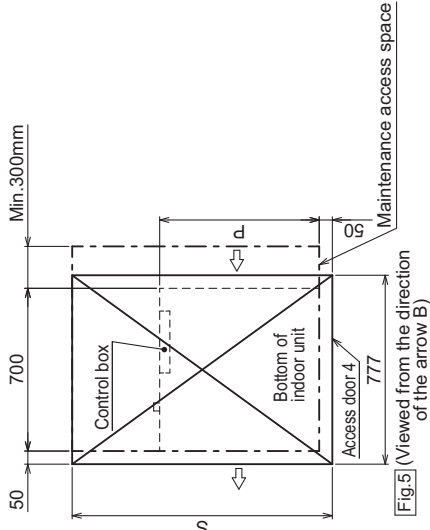
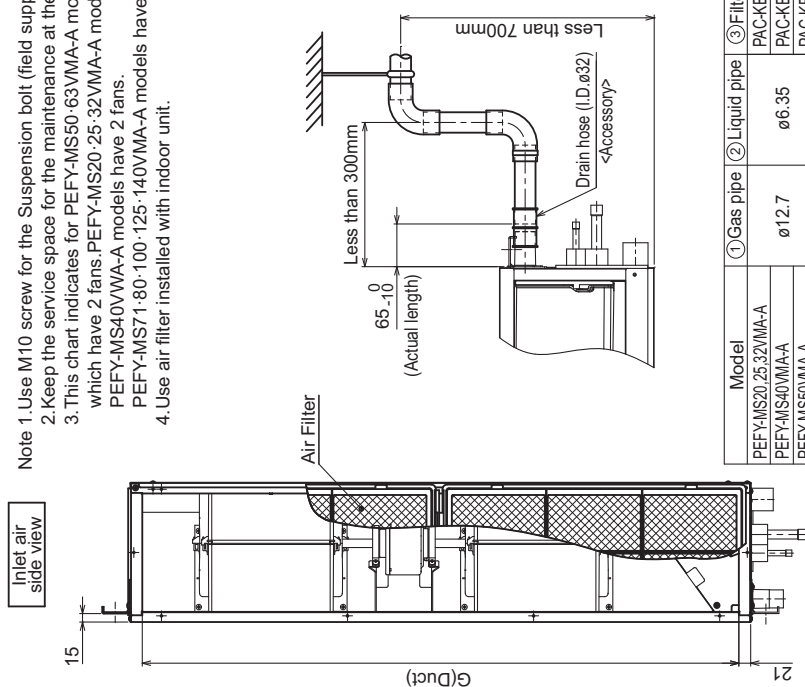


Fig.5 (Viewed from the direction of the arrow B)

Model	H	J	K	L	M	N	P	Q	R	S
PEFY-MS20, 25, 32VMA-A	44	150	300			10	700	50~150	800	1300
PEFY-MS40VMA-A	54	260		4	780	10	900	150~250	1000	1500
PEFY-MS50, 63VMA-A	49	330		4	990	10	1100	250~350	1200	1700
PEFY-MS71, 80, 100, 125VMA-A	54	320		5	1280	12	1400	400~500	1500	2000
PEFY-MS140VMA-A	54	370		5	1480	12	1600	500~600	1700	2200

Unit: mm

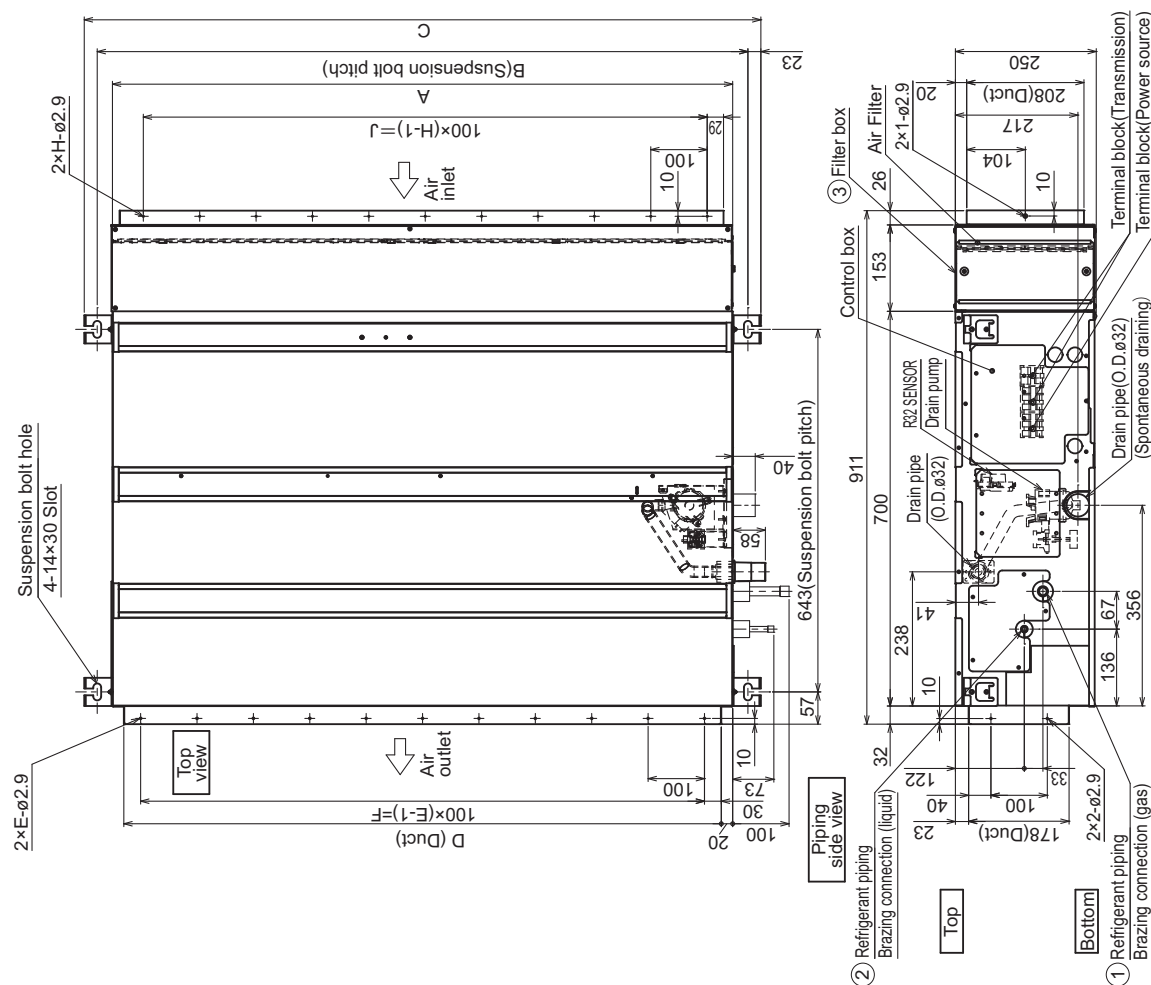
- Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-MS50-63VMA-A models, which have 2 fans. PEFY-MS20-25-32VMA-A models have 1 fan. PEFY-MS40VMA-A models have 2 fans.
4. Use air filter installed with indoor unit.



Model	①Gas pipe	②Liquid pipe	③Filter box
PEFY-M520/25.32VMA-A			PACK-KE91TB-E
PEFY-M540VMA-A	ø12.7	ø6.35	PACK-KE92TB-E
PEFY-M550VMA-A			PACK-KE93TB-E
PEFY-M563VMA-A			PACK-KE93TB-E
PEFY-M571/80/102VMA-A	ø15.88	ø9.52	PACK-KE94TB-E
PEFY-M5140VMA-A			PACK-KE95TB-E

Model	A	B	C	D	E	F	G	H	J
PEFY-MS20,25,32VMA-A	700	754	800	660	7	800	658	7	600
PEFY-MS40VMA-A	900	954	1000	860	9	800	858	9	800
PEFY-MS50,63VMA-A	1100	1154	1200	1060	11	1000	1058	11	1000
PEFY-MS71,80,100,125VMA-A	1400	1454	1500	1360	14	1300	1358	14	1300
PEFY-MS140VMA-A	1600	1654	1700	1560	16	1500	1558	16	1500

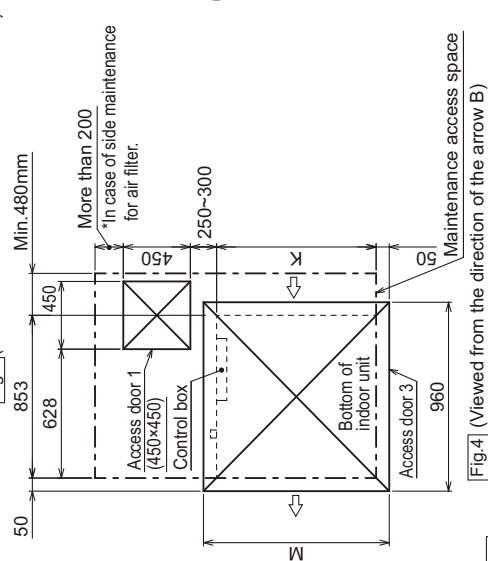
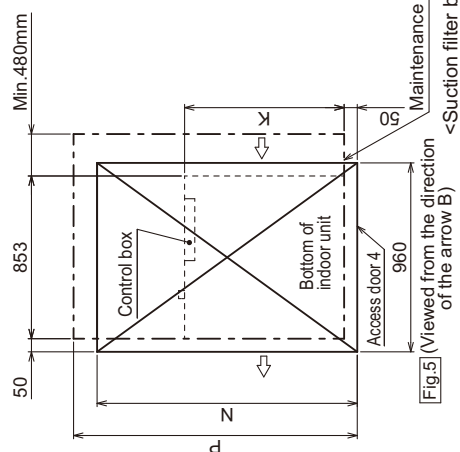
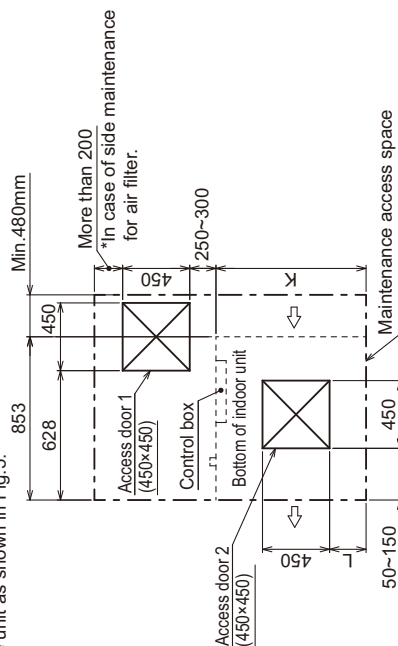
<Suction filter box built-in-specification>



Unit: mm

[maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

- (1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig. 1)
 - Create access door 1 and 2 (450×450mm each) as shown in Fig. 2.
- (2) When a space of less than 300mm is available below the unit between the unit and the ceiling. (At least 20mm of space should be left below the unit as shown in Fig. 3.)
 - Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig. 4.
or
 - Create access door 4 below the control box and the unit as shown in Fig. 5.



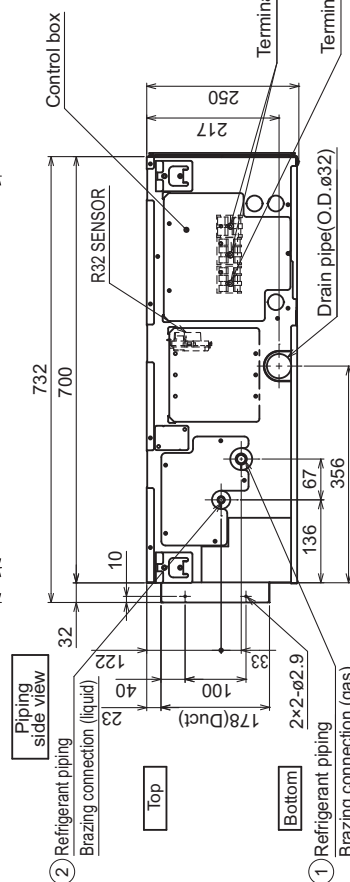
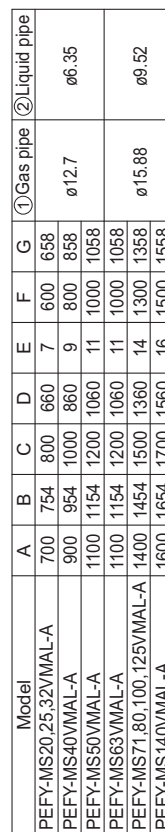
* Dimension 'P' is in case of side maintenance for air filter.

Model	K	L	M	N	P*
PEFY-MS20, 25, 32VMA-A	700	50–150	800	1300	1450
PEFY-MS40VMA-A	900	150–250	1000	1500	1850
PEFY-MS50, 63VMA-A	1100	250–350	1200	1700	
PEFY-MS71, 80, 100, 125VMA-A	1400	400–500	1500	2000	2150
PEFY-MS140VMA-A	1600	500–600	1700	2200	2550

PEFY-MS-VMA(L)-A

Unit: mm

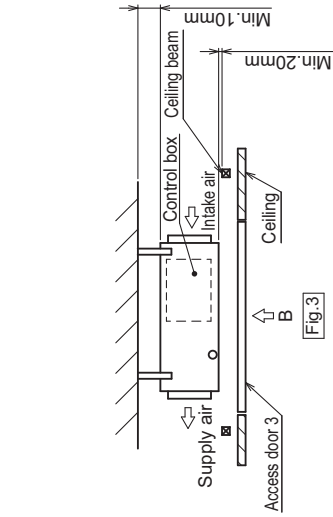
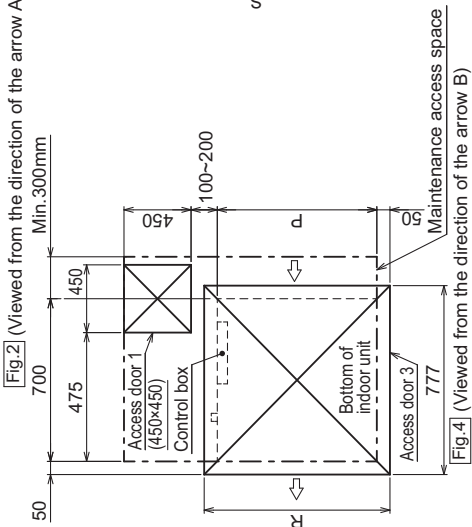
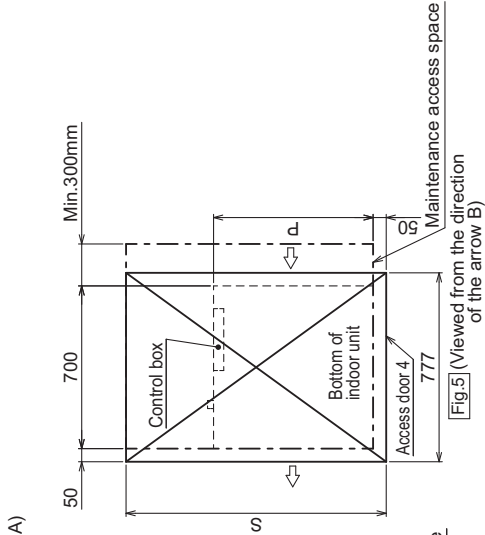
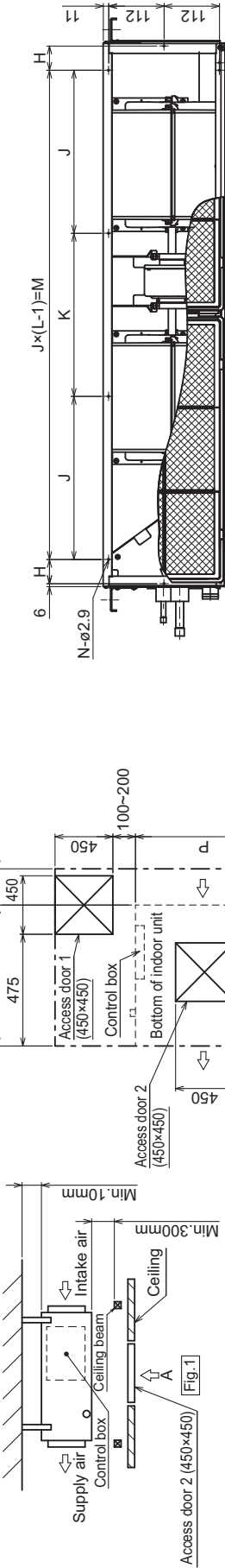
- Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFY-MS50-63VMAL-A models, which have 2 fans. PEFY-MS20-25-32VMAL-A models have 1 fan. PEFY-MS40VMAL-A models have 2 fans. PEFY-MS71-80-100-125-140VMAL-A models have 3 fans.
4. In case of the inlet duct is used, remove the air filter (supply with the unit), then install the filter (field supply) at suction side.



PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-A

Unit: mm

- [Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.
(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)
· Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
(Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)
(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
· Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
or
· Create access door 4 below the control box and the unit as shown in Fig.5.

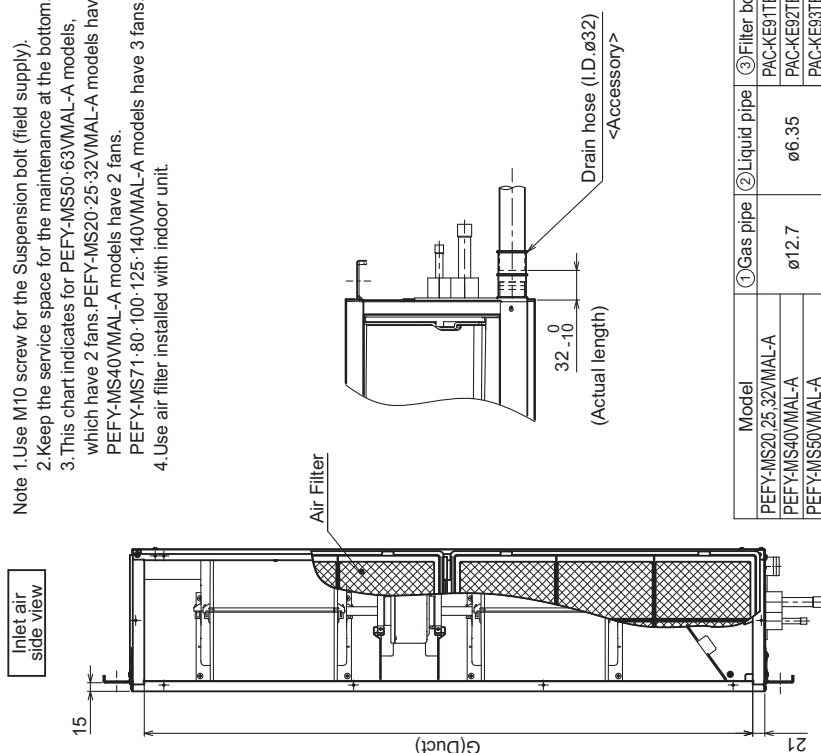


Model	H	J	K	L	M	N	P	Q	R	S
PEFY-MS20,25,32/MAL-A	44	150	300			10	700	50~150	800	1300
PEFY-MS40/MAL-A	54	260		4	780	10	900	150~250	1000	1500
PEFY-MS50,63/MAL-A	49	330		4	990	10	1100	250~350	1200	1700
PEFY-MS71,80,100,125/MAL-A	54	320		5	1280	12	1400	400~500	1500	2000
PEFY-MS140/MAL-A	54	370		5	1480	12	1600	500~600	1700	2200

PEFY-MS-VMA(L)-A

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-A Suction filter box built-in-specification

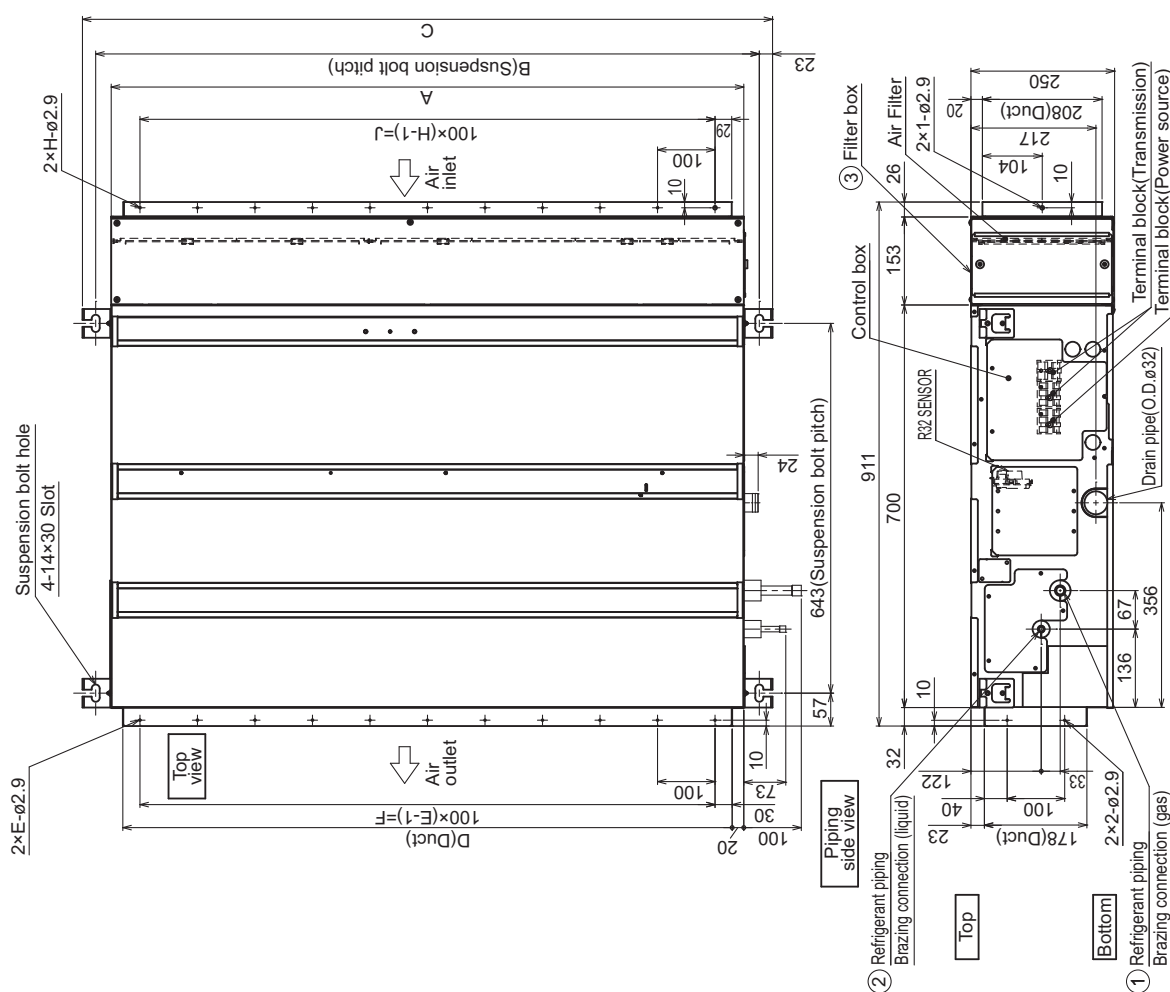
- Note 1. Use M10 screw for the Suspension bolt (field supply).
2. Keep the service space for the maintenance at the bottom.
3. This chart indicates for PEFF-MS50~63VMAL-A models, which have 2 fans. PEFF-MS20~25~32VMAL-A models have 1 fan. PEFF-MS40VMAL-A models have 2 fans. PEFF-MS71~80~100~125~140VMAL-A models have 3 fans. Use air filter installed with indoor unit.



Model	①Gas pipe	②Liquid pipe	③Filter box
PEFY-MS20 25 32V-MAL-A	ø12.7	ø6.35	PAC-KE91TB-E
PEFY-MS40V-MAL-A			PAC-KE92TB-E
PEFY-MS50V-MAL-A			PAC-KE93TB-E
PEFY-MS63V-MAL-A			PAC-KE93TB-E
PEFY-MS71.80;100;125V-MAL-A	ø15.88	ø9.52	PAC-KE94TB-E
PEFY-MS140V-MAL-A			PAC-KE95TB-E

Model	A	B	C	D	E	F	G	H	J
PEFY-MS20.32V2MAL-A	700	754	800	660	7	600	658	7	600
PEFY-MS40V2MAL-A	900	954	1000	860	9	800	858	9	800
PEFY-MS50.63V2MAL-A	1100	1154	1200	1060	11	1000	1058	11	1000
PEFY-MS71.80.100.125V2MAL-A	1400	1454	1500	1360	14	1300	1358	14	1300
PEFY-MS140V2MAL-A	1600	1654	1700	1560	16	1500	1558	16	1500

<Suction filter box built-in-specification>

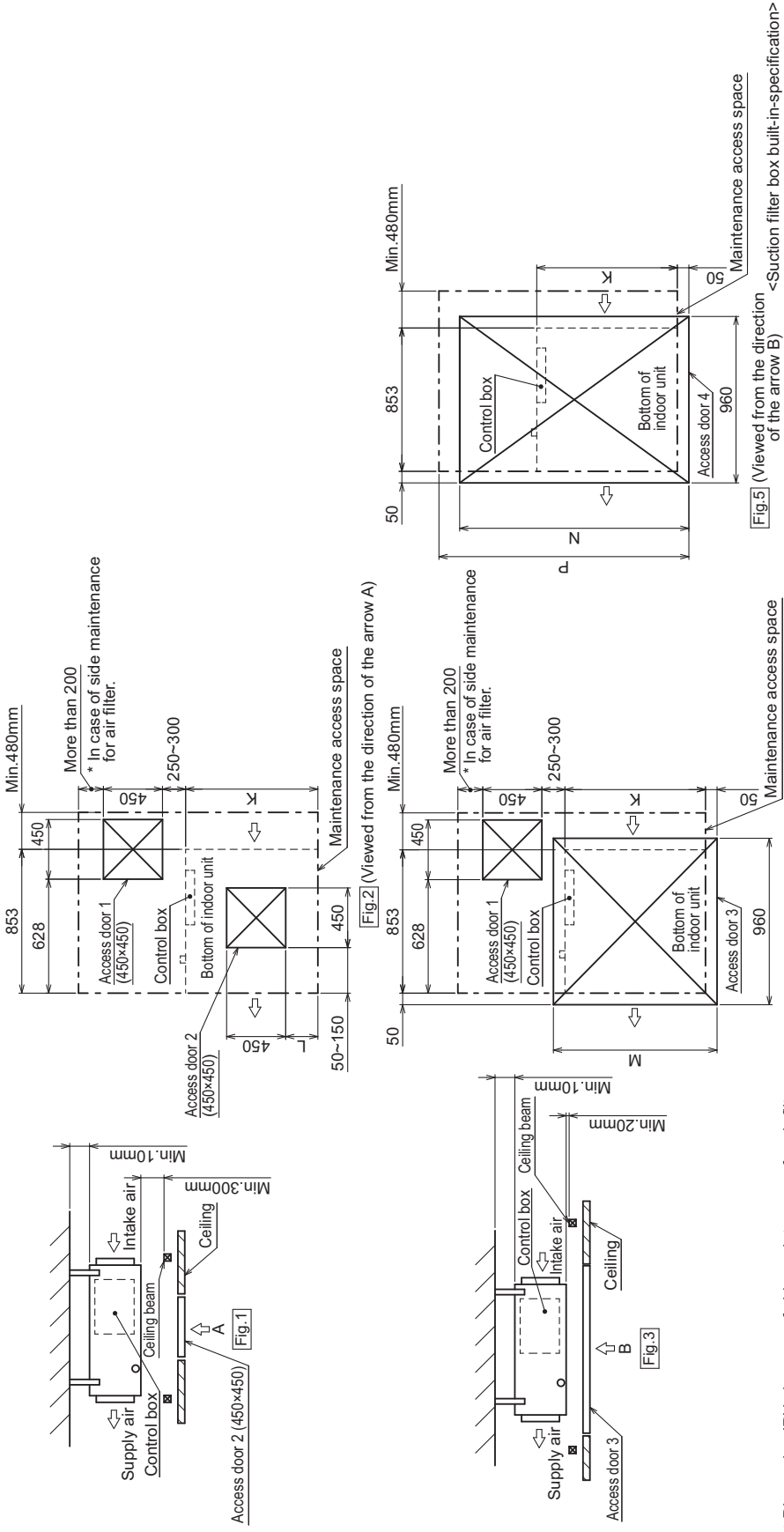


PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-A Suction filter box built-in-specification

Unit: mm

[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

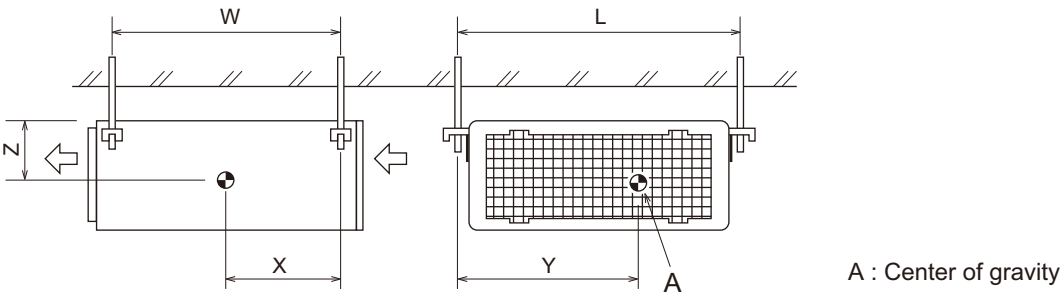
- (1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)
· Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
(Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)
(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
· Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
or
· Create access door 4 below the control box and the unit as shown in Fig.5.



* Dimension 'P' is in case of side maintenance for air filter.

Model	K	L	M	N	P*
PEFY-MS20,25,32VMAL-A	700	50~150	800	1300	1450
PEFY-MS40VMAL-A	900	150~250	1000	1500	1850
PEFY-MS50,63VMAL-A	1100	250~350	1200	1700	1700
PEFY-MS71,80,100,125VMAL-A	1400	400~500	1500	2000	2150
PEFY-MS140VMAL-A	1600	500~600	1700	2200	2550

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A



(mm) [in]

Model name	W	L	X	Y	Z
PEFY-MS20VMA(L)-A	643 [25 - 6/16]	754 [29 - 11/16]	330 [13]	300 [11 - 13/16]	130 [5 - 2/16]
PEFY-MS25VMA(L)-A	643 [25 - 6/16]	754 [29 - 11/16]	330 [13]	300 [11 - 13/16]	130 [5 - 2/16]
PEFY-MS32VMA(L)-A	643 [25 - 6/16]	754 [29 - 11/16]	330 [13]	300 [11 - 13/16]	130 [5 - 2/16]
PEFY-MS40VMA(L)-A	643 [25 - 6/16]	954 [37 - 9/16]	340 [13 - 7/16]	375 [14 - 13/16]	130 [5 - 2/16]
PEFY-MS50VMA(L)-A	643 [25 - 6/16]	1154 [45 - 7/16]	325 [12 - 13/16]	525 [20 - 11/16]	130 [5 - 2/16]
PEFY-MS63VMA(L)-A	643 [25 - 6/16]	1154 [45 - 7/16]	325 [12 - 13/16]	525 [20 - 11/16]	130 [5 - 2/16]
PEFY-MS71VMA(L)-A	643 [25 - 6/16]	1454 [57 - 4/16]	330 [13]	675 [26 - 10/16]	130 [5 - 2/16]
PEFY-MS80VMA(L)-A	643 [25 - 6/16]	1454 [57 - 4/16]	330 [13]	675 [26 - 10/16]	130 [5 - 2/16]
PEFY-MS100VMA(L)-A	643 [25 - 6/16]	1454 [57 - 4/16]	330 [13]	675 [26 - 10/16]	130 [5 - 2/16]
PEFY-MS125VMA(L)-A	643 [25 - 6/16]	1454 [57 - 4/16]	330 [13]	675 [26 - 10/16]	130 [5 - 2/16]
PEFY-MS140VMA(L)-A	643 [25 - 6/16]	1654 [65 - 2/16]	332 [13 - 2/16]	725 [28 - 9/16]	130 [5 - 2/16]

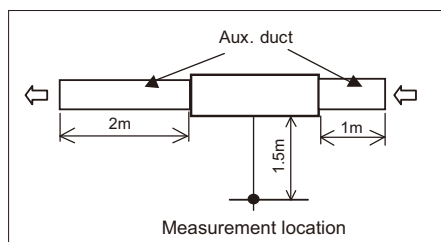
PEFY-MS-VMA(L)-A

PEFY-MS-VMA(L)-A



5-1. Sound levels

PEFY-MS-VMA(L)-A



* Measured in anechoic room.

Sound level at anechoic room: Low-Mid2-Mid1-High

Model		Sound level dB (A)					
		35Pa	40Pa	50Pa	70Pa	100Pa	150Pa
PEFY-MS20, 25VMA(L)-A	Cooling	21.5-23-26.5-30	-	21.5-24.5-27.5-30.5	23.5-25-29-31	23-26-30-34	28.5-32.5-35.5-38.5
	Heating	21.5-23-26.5-30	-	21.5-24.5-27.5-30.5	23.5-25-29-31	23-26-30-34	28.5-32.5-35.5-38.5
PEFY-MS32VMA(L)-A	Cooling	24.0-28.0-31.5-35.5	-	26.5-29.0-32.5-36.5	25.5-30.0-33.5-37.5	27.0-31.5-34.5-38.5	32.0-34.5-37.0-39.0
	Heating	24.0-28.0-31.5-35.5	-	26.5-29.0-32.5-36.5	25.5-30.0-33.5-37.5	27.0-31.5-34.5-38.5	32.0-34.5-37.0-39.0
PEFY-MS40VMA(L)-A	Cooling	23.5-25.5-28.5-37	-	23-26-29-37.5	24-27-32-39	26-30.5-33.5-39.5	33-36.5-38.5-41
	Heating	23.5-25.5-28.5-37	-	23-26-29-37.5	24-27-32-39	26-30.5-33.5-39.5	33-36.5-38.5-41
PEFY-MS50VMA(L)-A	Cooling	22-24-26.5-37	-	22.5-24.5-27.5-37.5	22.5-25.5-28-38.5	22.5-26.5-29.5-40	31.5-34.5-37.5-40.5
	Heating	22-24-26.5-37	-	22.5-24.5-27.5-37.5	22.5-25.5-28-38.5	22.5-26.5-29.5-40	31.5-34.5-37.5-40.5
PEFY-MS63VMA(L)-A	Cooling	23-26-30-37.5	-	23-26.5-31-38	24-28.5-31.5-39	24.5-28.5-32.5-40	31.5-35-38-41
	Heating	23-26-30-41.5	-	23-26.5-31-41	24-28.5-31.5-40.5	24.5-28.5-32.5-41	31.5-35-38-41
PEFY-MS71, 80VMA(L)-A	Cooling	-	22-25-27.5-38.5	21.5-25-28.5-39	22.5-26-29.5-40.5	23-27.5-31-42.5	33-36.5-40-42
	Heating	-	22-25-27.5-40.5	21.5-25-28.5-41.5	22.5-26-29.5-42.5	23-27.5-31-43	33-36.5-40-42
PEFY-MS100VMA(L)-A	Cooling	-	29.5-34-37.5-40	29.5-34.5-37.5-41	31-35.5-38.5-42	32.5-37-40-43	36.5-39.5-43-45.5
	Heating	-	29.5-34-37.5-40	29.5-34.5-37.5-41	31-35.5-38.5-42	32.5-37-40-43	36.5-39.5-43-45.5
PEFY-MS125VMA(L)-A	Cooling	-	31-36-38.5-40.5	31.5-36.5-38.5-40.5	34-37.5-39.5-42	34.5-39-41.5-43	37-40.5-44-46.5
	Heating	-	31-36-38.5-40.5	31.5-36.5-38.5-40.5	34-37.5-39.5-42	34.5-39-41.5-43	37-40.5-44-46.5
PEFY-MS140VMA(L)-A	Cooling	-	33.5-37.5-40.5-42.5	34-38-40.5-43	34.5-39-41-43.5	35.5-39.5-42.5-45	39.5-42-45-47
	Heating	-	33.5-37.5-40.5-42.5	34-38-40.5-43	34.5-39-41-43.5	35.5-39.5-42.5-45	39.5-42-45-47

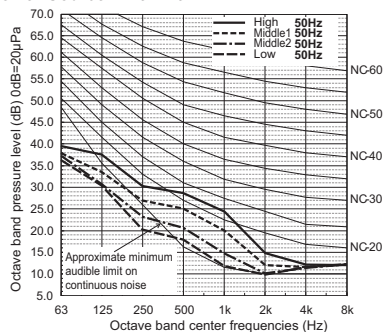
5-2. NC curves

PEFY-MS20,25VMA(L)-A

Cooling/Heating

External Static Pressure: 35Pa [0.14in.WG]

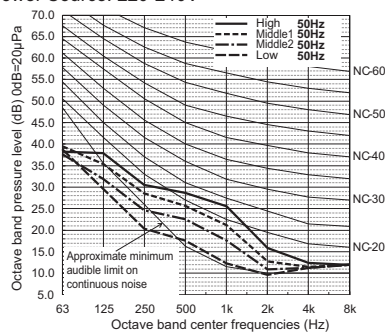
Power Source: 220-240V

**PEFY-MS20,25VMA(L)-A**

Cooling/Heating

External Static Pressure: 50Pa [0.20in.WG]

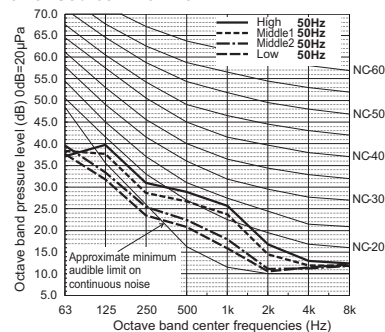
Power Source: 220-240V

**PEFY-MS20,25VMA(L)-A**

Cooling/Heating

External Static Pressure: 70Pa [0.28in.WG]

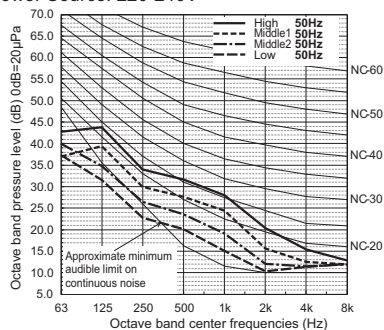
Power Source: 220-240V

**PEFY-MS20,25VMA(L)-A**

Cooling/Heating

External Static Pressure: 100Pa [0.40in.WG]

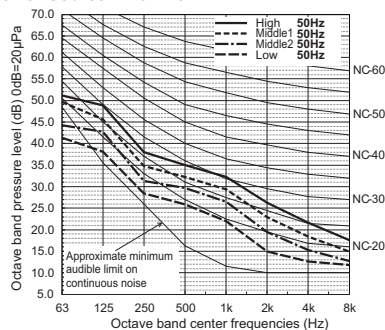
Power Source: 220-240V

**PEFY-MS20,25VMA(L)-A**

Cooling/Heating

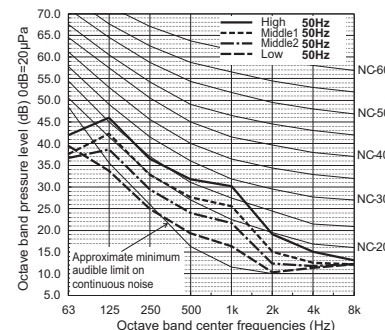
External Static Pressure: 150Pa [0.60in.WG]

Power Source: 220-240V

**PEFY-MS32VMA(L)-A**

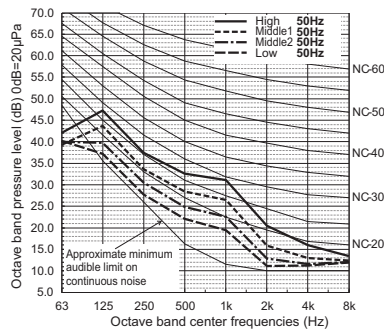
External Static Pressure: 35Pa [0.14in.WG]

Power Source: 220-240V

**PEFY-MS32VMA(L)-A**

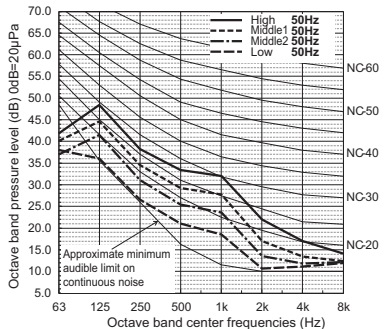
External Static Pressure: 50Pa [0.20in.WG]

Power Source: 220-240V

**PEFY-MS32VMA(L)-A**

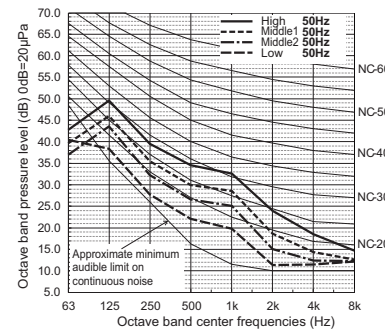
External Static Pressure: 70Pa [0.28in.WG]

Power Source: 220-240V

**PEFY-MS32VMA(L)-A**

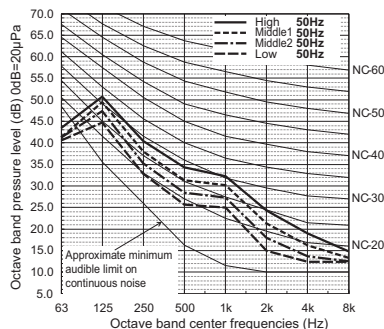
External Static Pressure: 100Pa [0.40in.WG]

Power Source: 220-240V

**PEFY-MS32VMA(L)-A**

External Static Pressure: 150Pa [0.60in.WG]

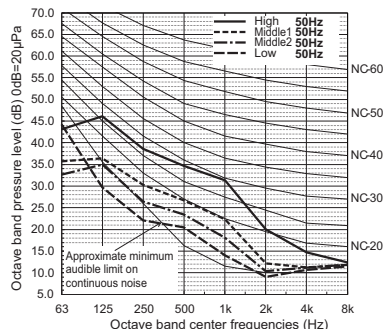
Power Source: 220-240V

**PEFY-MS40VMA(L)-A**

Cooling/Heating

External Static Pressure: 35Pa [0.14in.WG]

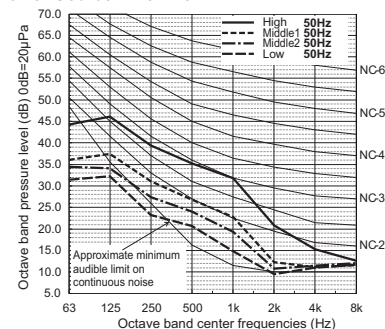
Power Source: 220-240V

**PEFY-MS40VMA(L)-A**

Cooling/Heating

External Static Pressure: 50Pa [0.20in.WG]

Power Source: 220-240V

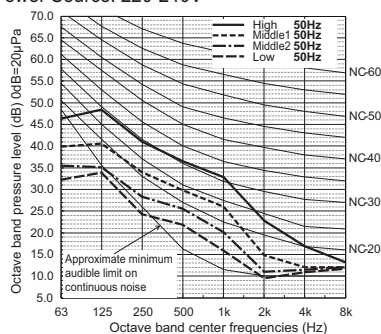


PEFY-MS40VMA(L)-A

Cooling/Heating

External Static Pressure: 70Pa [0.28in.WG]

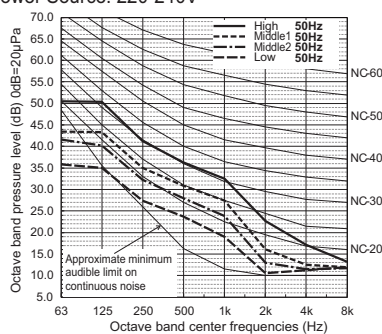
Power Source: 220-240V

**PEFY-MS40VMA(L)-A**

Cooling/Heating

External Static Pressure: 100Pa [0.40in.WG]

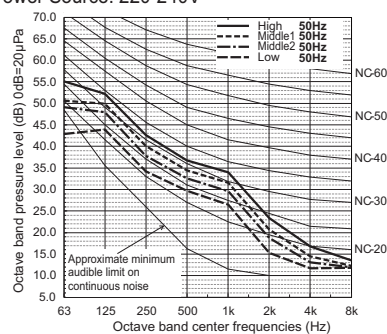
Power Source: 220-240V

**PEFY-MS40VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

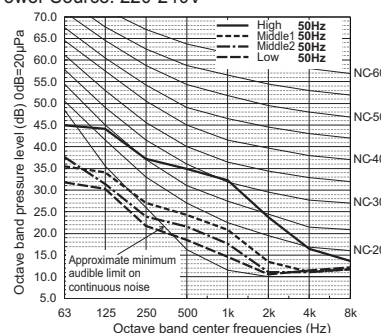
Power Source: 220-240V

**PEFY-MS50VMA(L)-A**

Cooling/Heating

External Static Pressure: 35Pa [0.14in.WG]

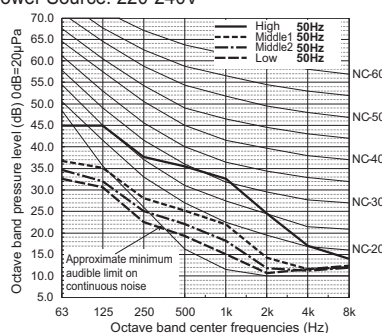
Power Source: 220-240V

**PEFY-MS50VMA(L)-A**

Cooling/Heating

External Static Pressure: 50Pa [0.20in.WG]

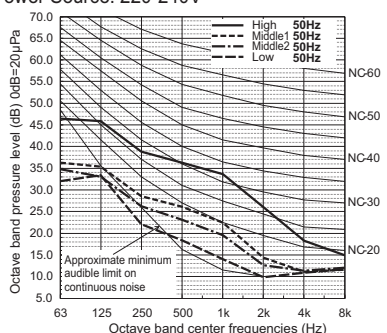
Power Source: 220-240V

**PEFY-MS50VMA(L)-A**

Cooling/Heating

External Static Pressure: 70Pa [0.28in.WG]

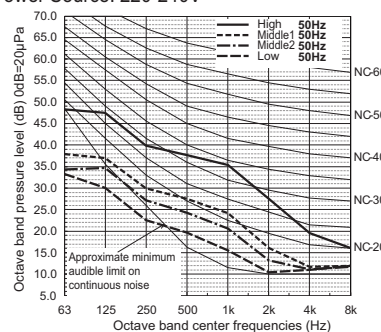
Power Source: 220-240V

**PEFY-MS50VMA(L)-A**

Cooling/Heating

External Static Pressure: 100Pa [0.40in.WG]

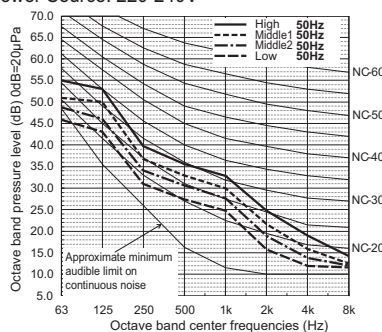
Power Source: 220-240V

**PEFY-MS50VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

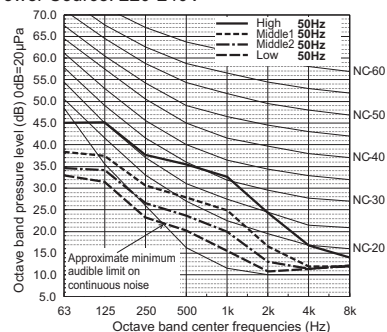
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Cooling

External Static Pressure: 35Pa [0.14in.WG]

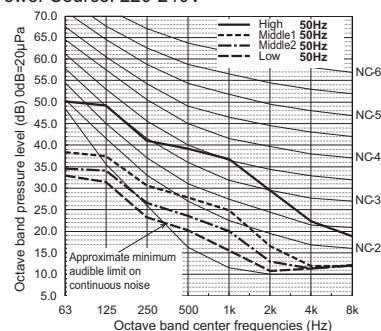
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Heating

External Static Pressure: 35Pa [0.14in.WG]

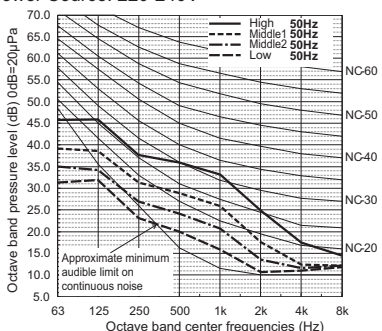
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Cooling

External Static Pressure: 50Pa [0.20in.WG]

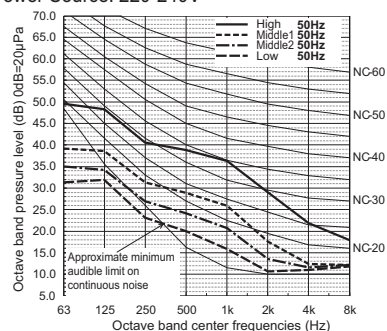
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Heating

External Static Pressure: 50Pa [0.20in.WG]

Power Source: 220-240V

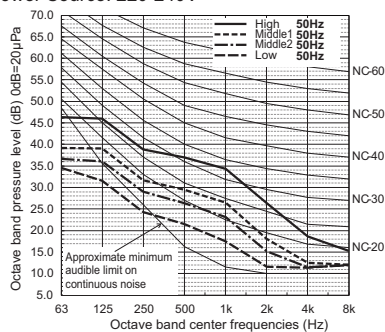


PEFY-MS63VMA(L)-A

Cooling

External Static Pressure: 70Pa [0.28in.WG]

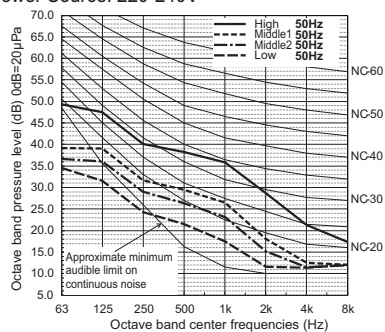
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Heating

External Static Pressure: 70Pa [0.28in.WG]

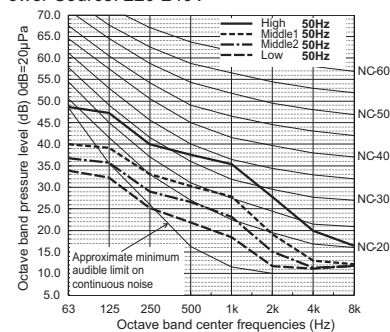
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Cooling

External Static Pressure: 100Pa [0.40in.WG]

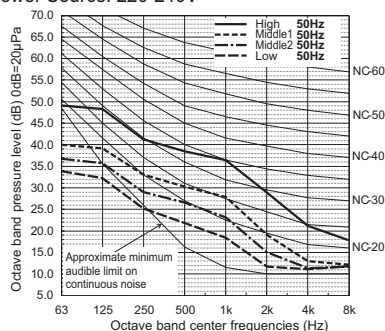
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Heating

External Static Pressure: 100Pa [0.40in.WG]

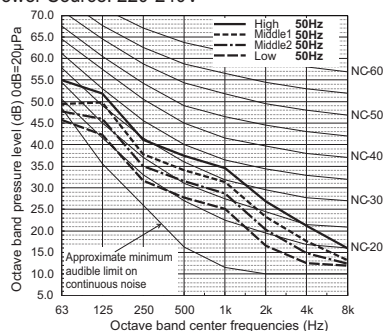
Power Source: 220-240V

**PEFY-MS63VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

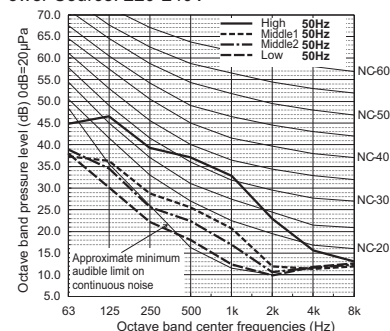
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Cooling

External Static Pressure: 40Pa [0.16in.WG]

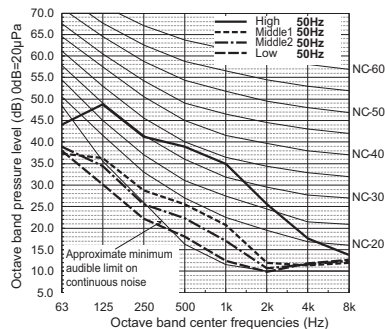
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Heating

External Static Pressure: 40Pa [0.16in.WG]

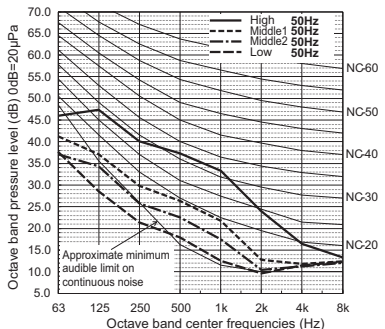
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Cooling

External Static Pressure: 50Pa [0.20in.WG]

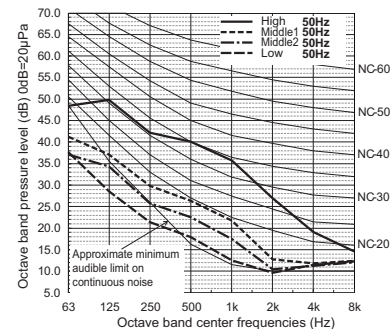
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Heating

External Static Pressure: 50Pa [0.20in.WG]

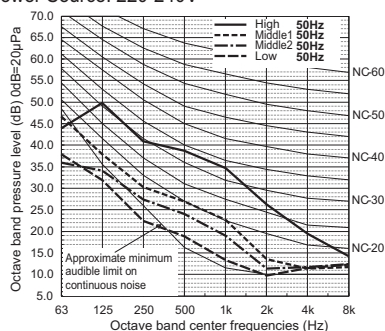
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Cooling

External Static Pressure: 70Pa [0.28in.WG]

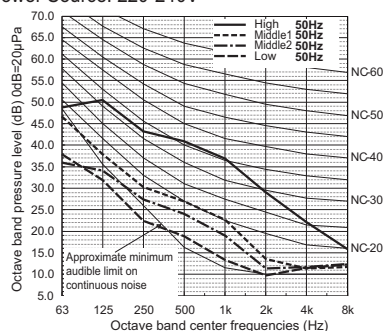
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Heating

External Static Pressure: 70Pa [0.28in.WG]

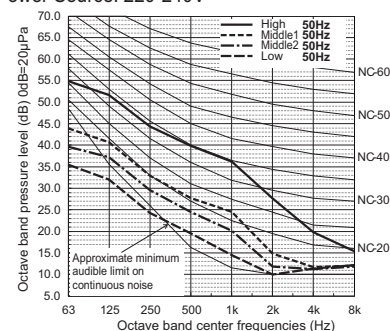
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Cooling

External Static Pressure: 100Pa [0.40in.WG]

Power Source: 220-240V

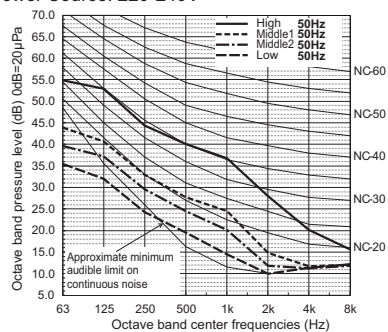


PEFY-MS71,80VMA(L)-A

Heating

External Static Pressure: 100Pa [0.40in.WG]

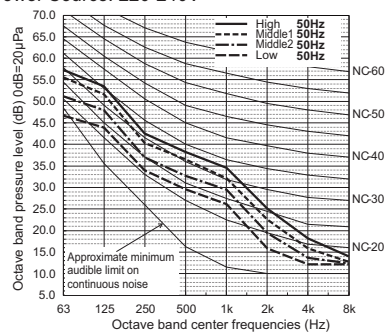
Power Source: 220-240V

**PEFY-MS71,80VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

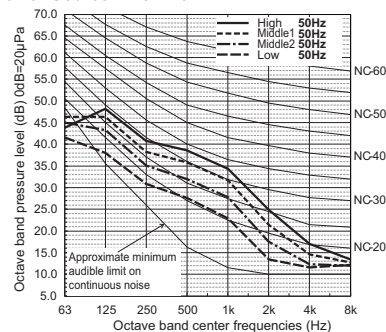
Power Source: 220-240V

**PEFY-MS100VMA(L)-A**

Cooling/Heating

External Static Pressure: 40Pa [0.16in.WG]

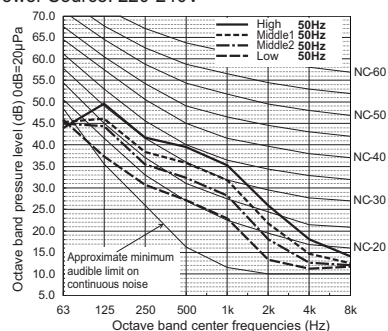
Power Source: 220-240V

**PEFY-MS100VMA(L)-A**

Cooling/Heating

External Static Pressure: 50Pa [0.20in.WG]

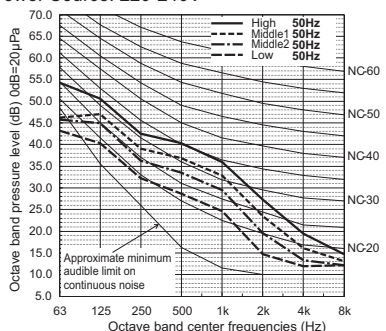
Power Source: 220-240V

**PEFY-MS100VMA(L)-A**

Cooling/Heating

External Static Pressure: 70Pa [0.28in.WG]

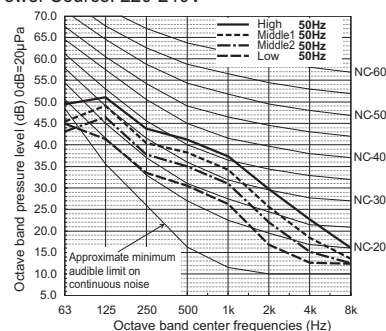
Power Source: 220-240V

**PEFY-MS100VMA(L)-A**

Cooling/Heating

External Static Pressure: 100Pa [0.40in.WG]

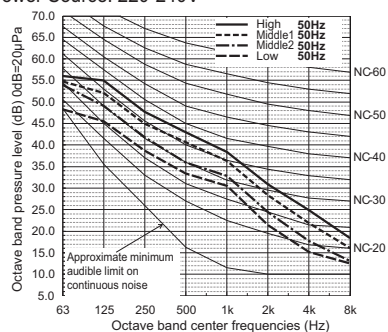
Power Source: 220-240V

**PEFY-MS100VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

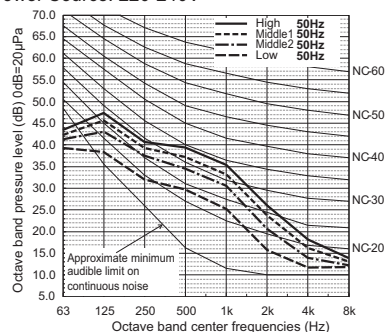
Power Source: 220-240V

**PEFY-MS125VMA(L)-A**

Cooling/Heating

External Static Pressure: 40Pa [0.16in.WG]

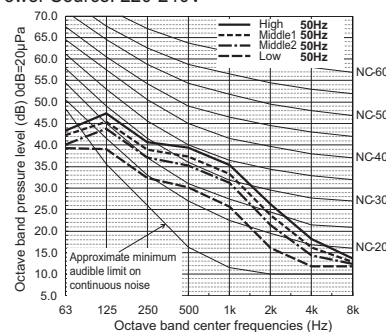
Power Source: 220-240V

**PEFY-MS125VMA(L)-A**

Cooling/Heating

External Static Pressure: 50Pa [0.20in.WG]

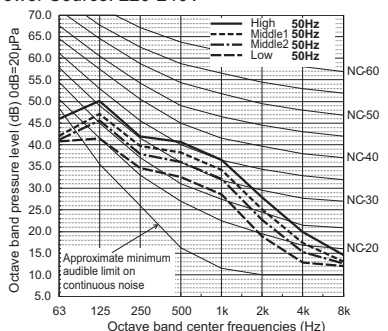
Power Source: 220-240V

**PEFY-MS125VMA(L)-A**

Cooling/Heating

External Static Pressure: 70Pa [0.28in.WG]

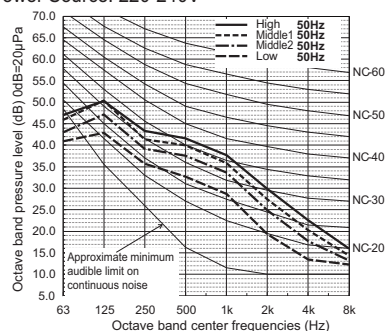
Power Source: 220-240V

**PEFY-MS125VMA(L)-A**

Cooling/Heating

External Static Pressure: 100Pa [0.40in.WG]

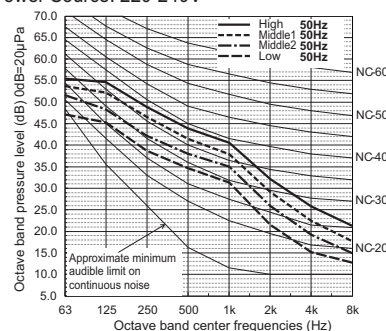
Power Source: 220-240V

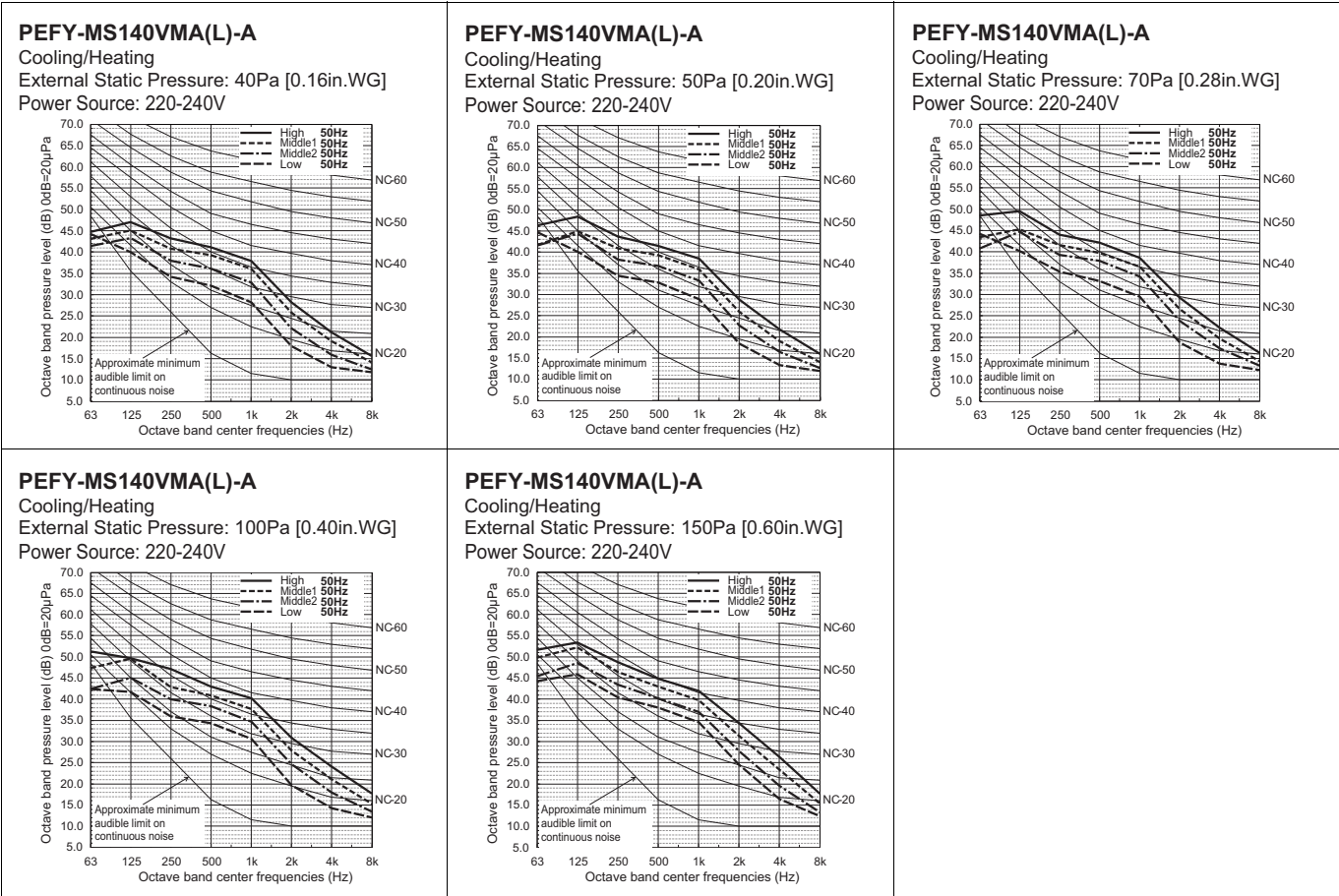
**PEFY-MS125VMA(L)-A**

Cooling/Heating

External Static Pressure: 150Pa [0.60in.WG]

Power Source: 220-240V





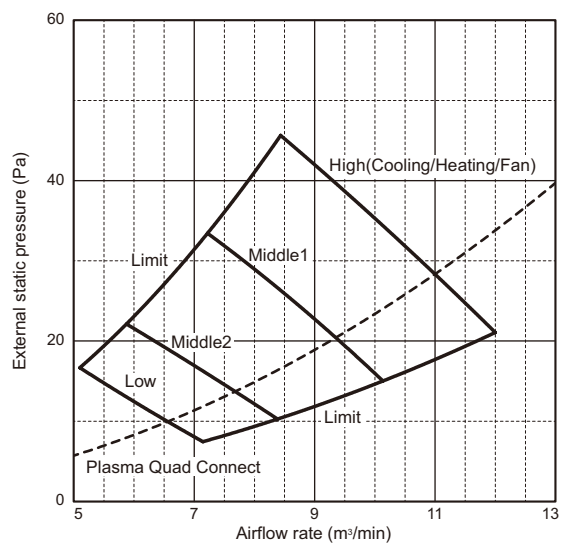
6. FAN CHARACTERISTICS CURVES

Ceiling concealed (Medium static pressure type)

PEFY-MS20, 25VMA(L)-A

External static pressure : 35Pa

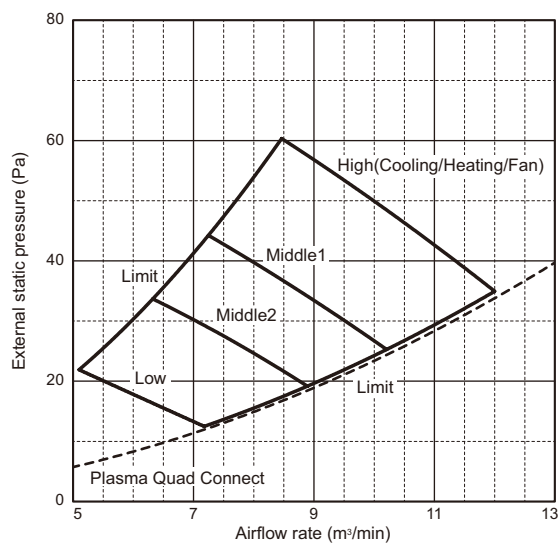
Power source : 220-240V



PEFY-MS20, 25VMA(L)-A

External static pressure : 50Pa

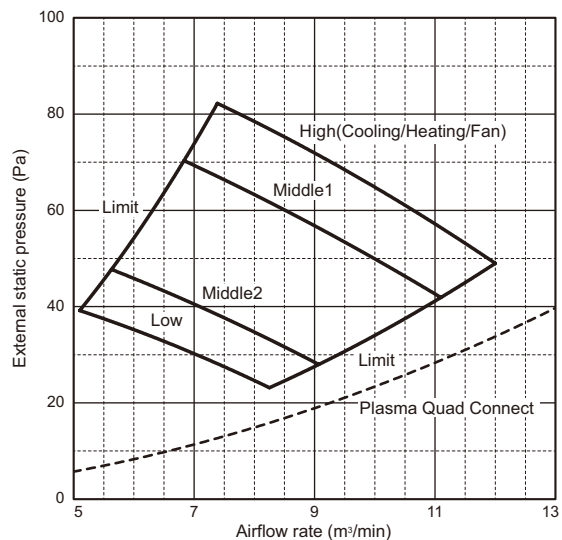
Power source : 220-240V



PEFY-MS20, 25VMA(L)-A

External static pressure : 70Pa

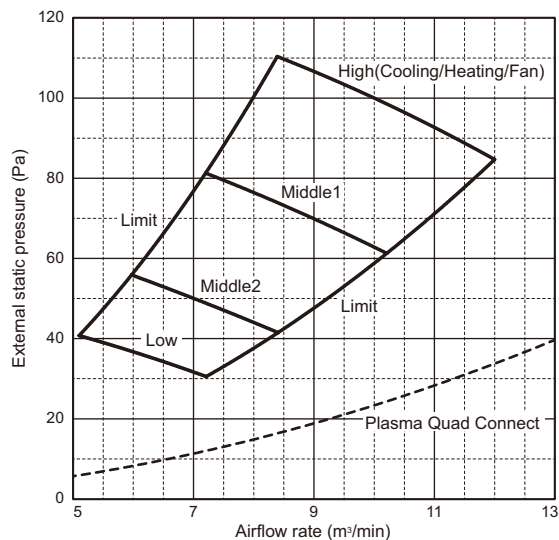
Power source : 220-240V



PEFY-MS20, 25VMA(L)-A

External static pressure : 100Pa

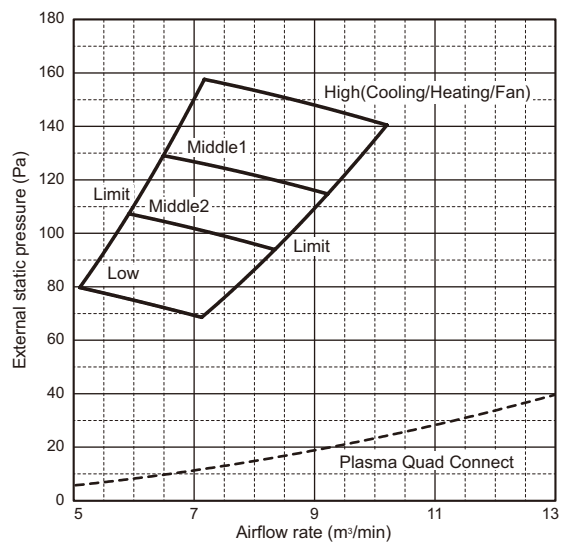
Power source : 220-240V



PEFY-MS20, 25VMA(L)-A

External static pressure : 150Pa

Power source : 220-240V

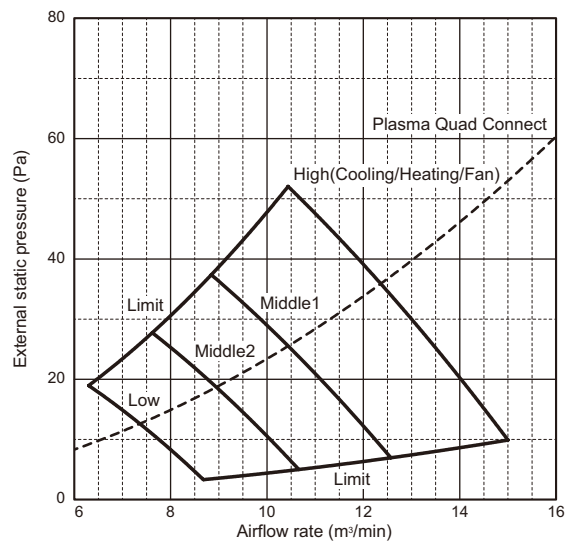


♦The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS32VMA(L)-A

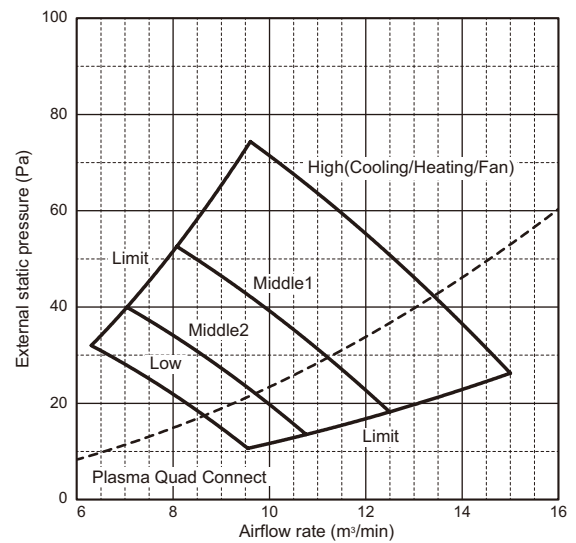
External static pressure : 35Pa

Power source : 220-240V

**PEFY-MS32VMA(L)-A**

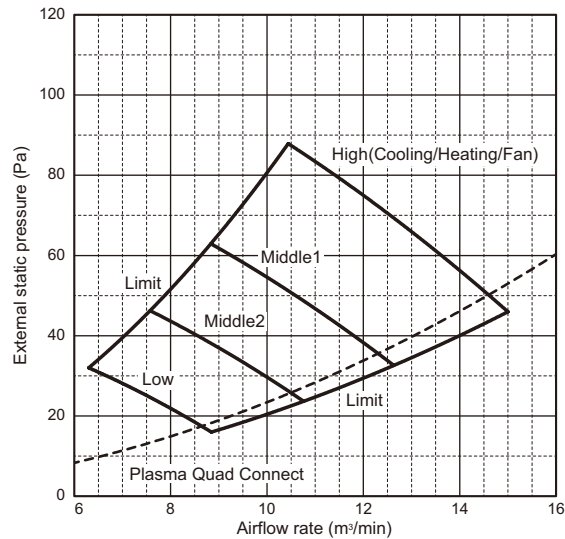
External static pressure : 50Pa

Power source : 220-240V

**PEFY-MS32VMA(L)-A**

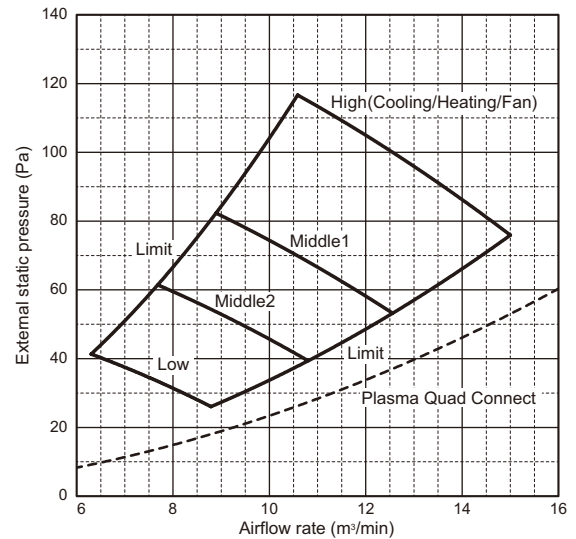
External static pressure : 70Pa

Power source : 220-240V

**PEFY-MS32VMA(L)-A**

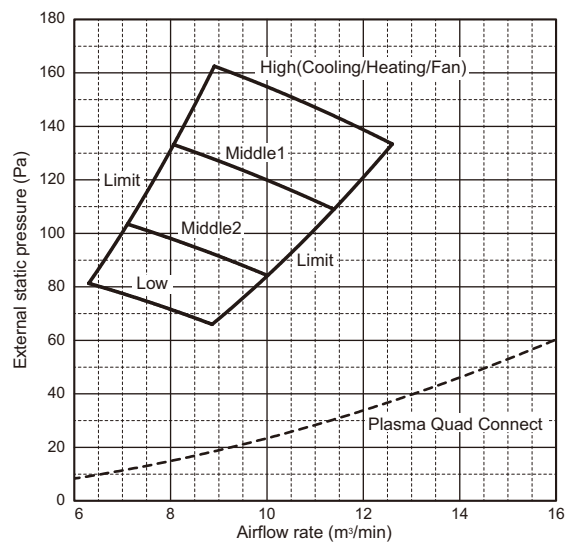
External static pressure : 100Pa

Power source : 220-240V

**PEFY-MS32VMA(L)-A**

External static pressure : 150Pa

Power source : 220-240V



♦The fan characteristic curves (solid line) are the data with no optional parts attached.

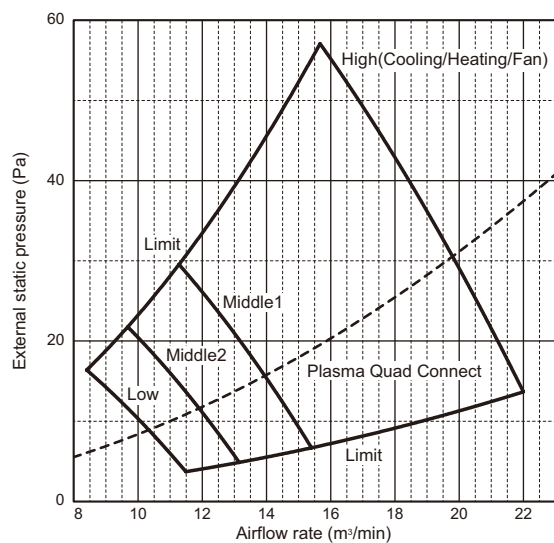
6. FAN CHARACTERISTICS CURVES

Ceiling concealed (Medium static pressure type)

PEFY-MS40VMA(L)-A

External static pressure : 35Pa

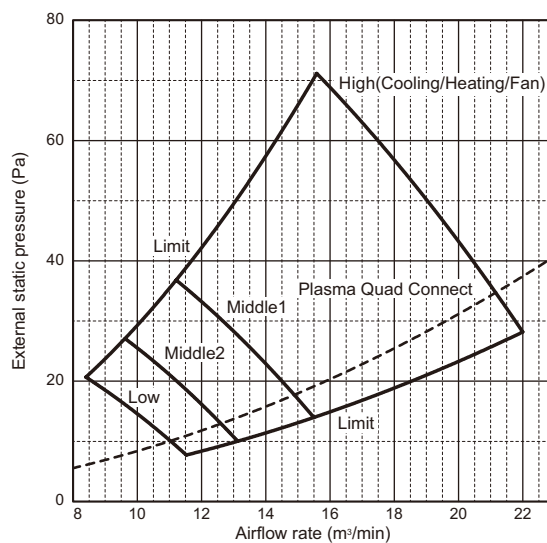
Power source : 220-240V



PEFY-MS40VMA(L)-A

External static pressure : 50Pa

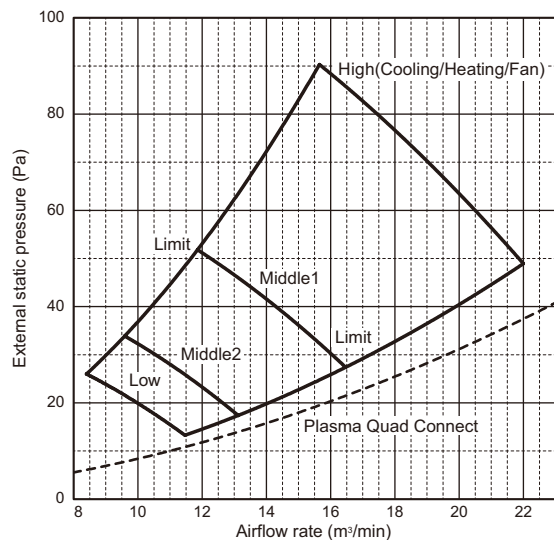
Power source : 220-240V



PEFY-MS40VMA(L)-A

External static pressure : 70Pa

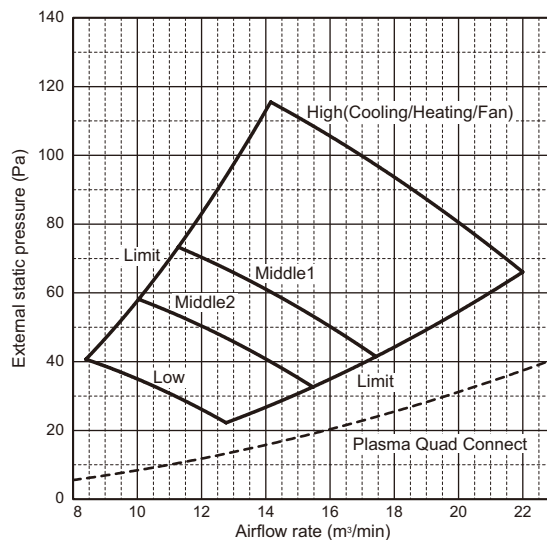
Power source : 220-240V



PEFY-MS40VMA(L)-A

External static pressure : 100Pa

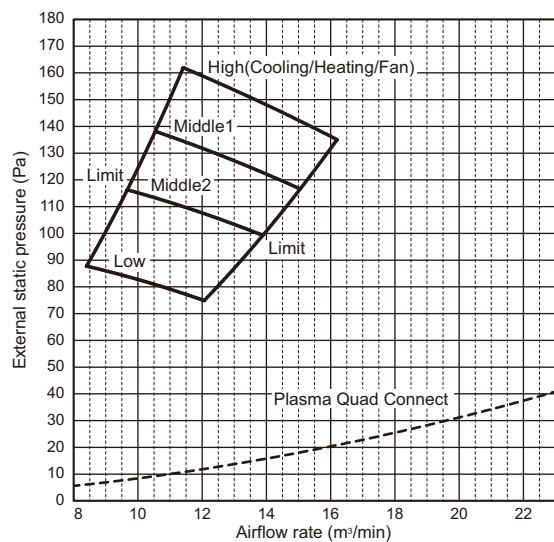
Power source : 220-240V



PEFY-MS40VMA(L)-A

External static pressure : 150Pa

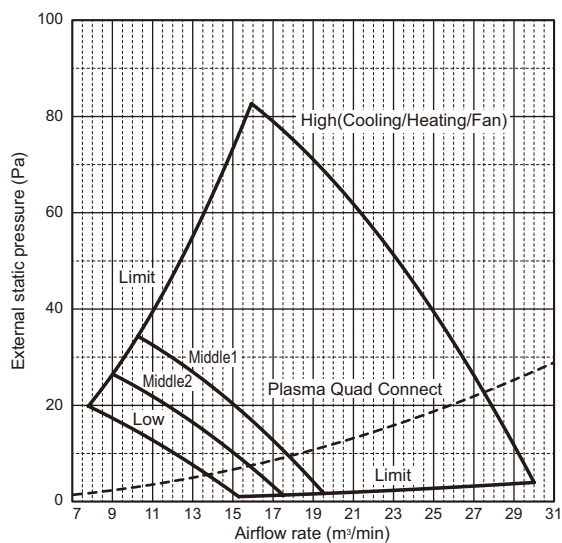
Power source : 220-240V



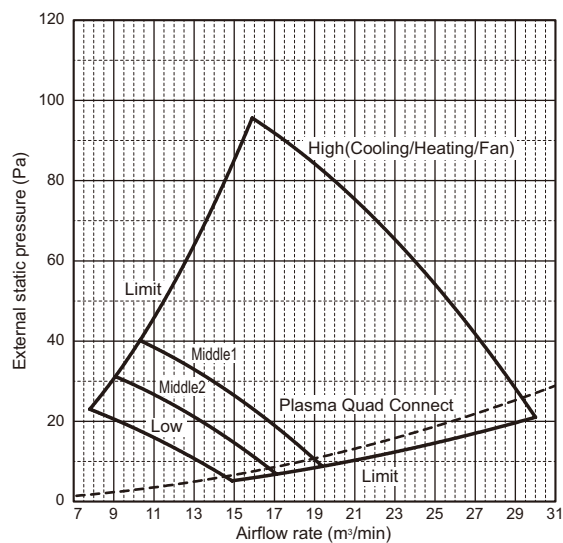
♦The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS50VMA(L)-A

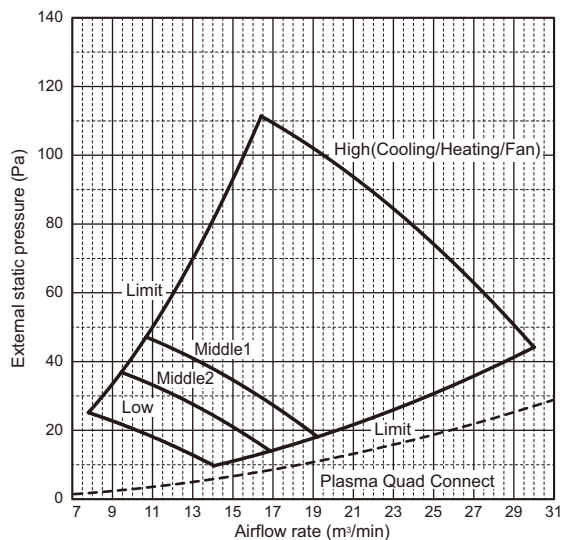
External static pressure : 35Pa
Power source : 220-240V

**PEFY-MS50VMA(L)-A**

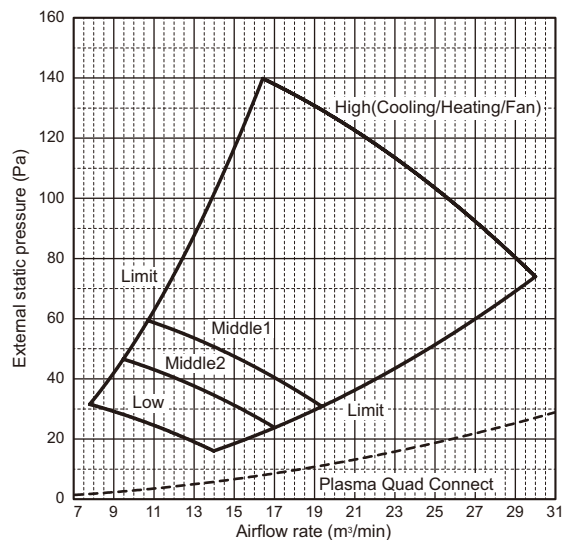
External static pressure : 50Pa
Power source : 220-240V

**PEFY-MS50VMA(L)-A**

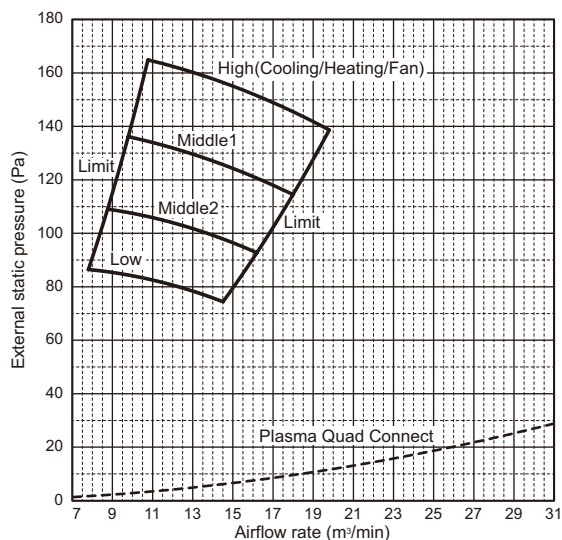
External static pressure : 70Pa
Power source : 220-240V

**PEFY-MS50VMA(L)-A**

External static pressure : 100Pa
Power source : 220-240V

**PEFY-MS50VMA(L)-A**

External static pressure : 150Pa
Power source : 220-240V

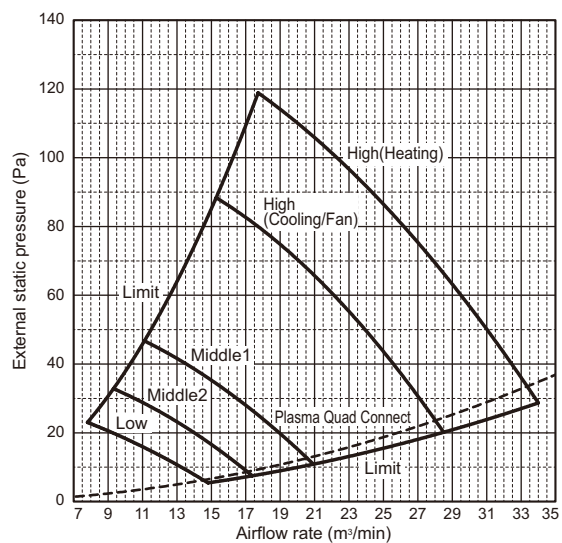


♦The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS63VMA(L)-A

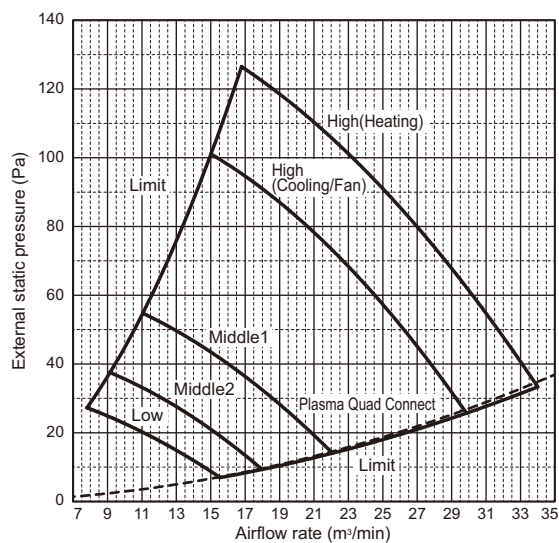
External static pressure : 35Pa

Power source : 220-240V

**PEFY-MS63VMA(L)-A**

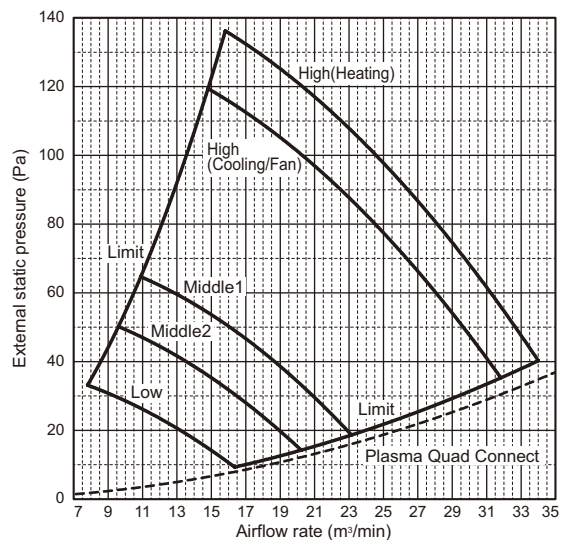
External static pressure : 50Pa

Power source : 220-240V

**PEFY-MS63VMA(L)-A**

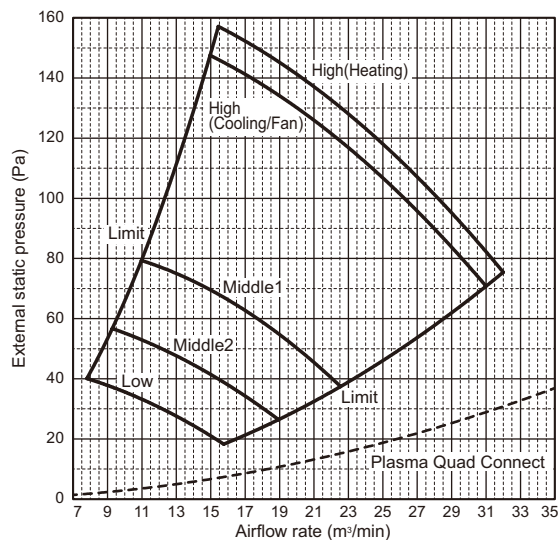
External static pressure : 70Pa

Power source : 220-240V

**PEFY-MS63VMA(L)-A**

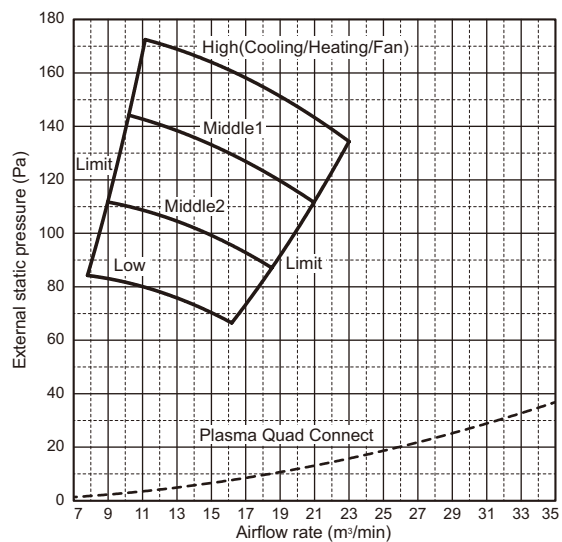
External static pressure : 100Pa

Power source : 220-240V

**PEFY-MS63VMA(L)-A**

External static pressure : 150Pa

Power source : 220-240V

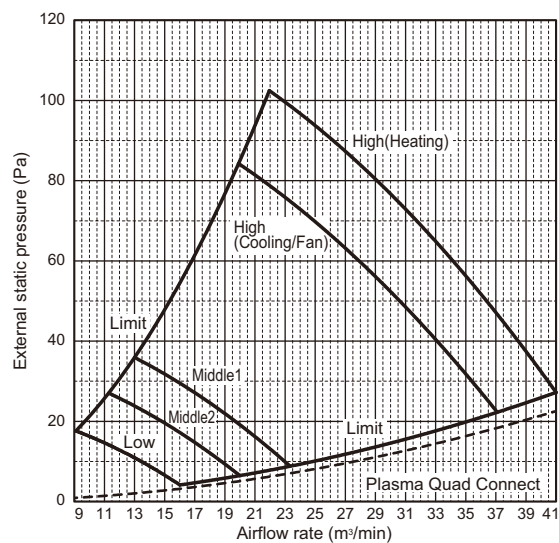


♦The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS71, 80VMA(L)-A

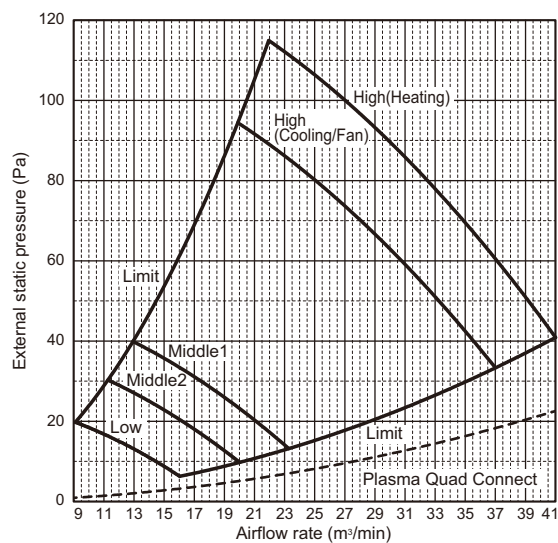
External static pressure : 40Pa

Power source : 220-240V

**PEFY-MS71, 80VMA(L)-A**

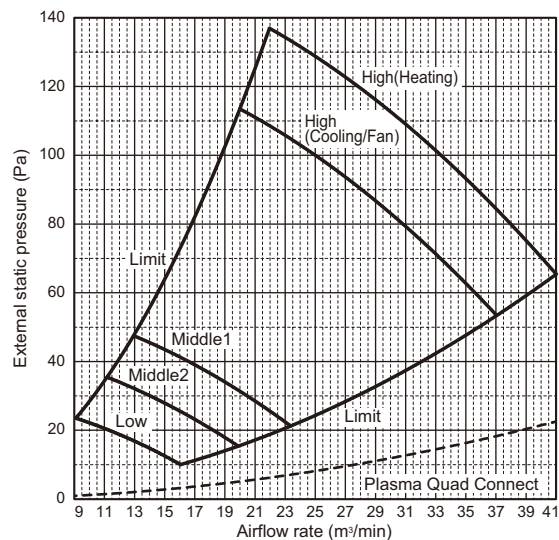
External static pressure : 50Pa

Power source : 220-240V

**PEFY-MS71, 80VMA(L)-A**

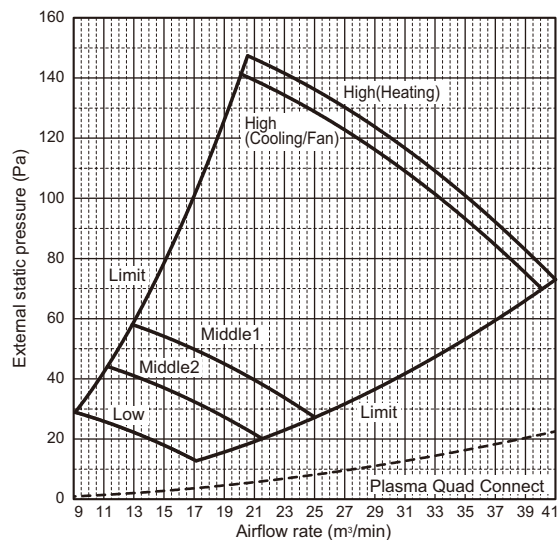
External static pressure : 70Pa

Power source : 220-240V

**PEFY-MS71, 80VMA(L)-A**

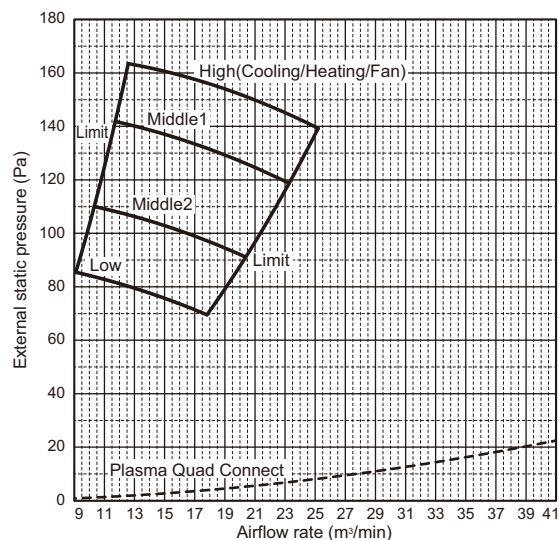
External static pressure : 100Pa

Power source : 220-240V

**PEFY-MS71, 80VMA(L)-A**

External static pressure : 150Pa

Power source : 220-240V

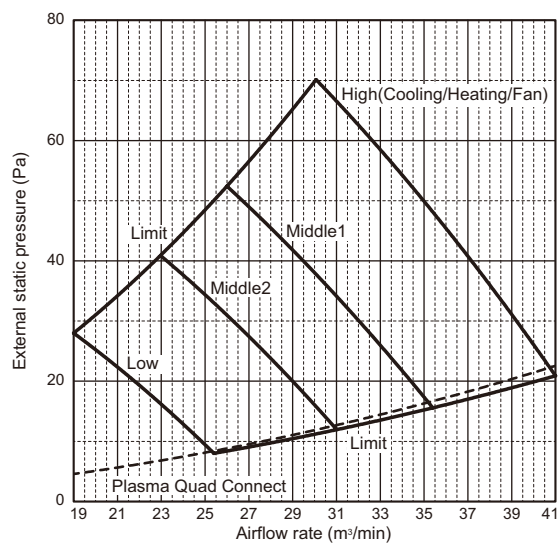


•The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS100VMA(L)-A

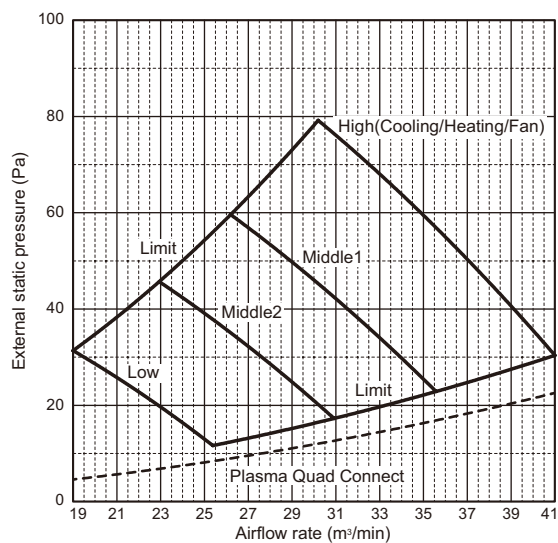
External static pressure : 40Pa

Power source : 220-240V

**PEFY-MS100VMA(L)-A**

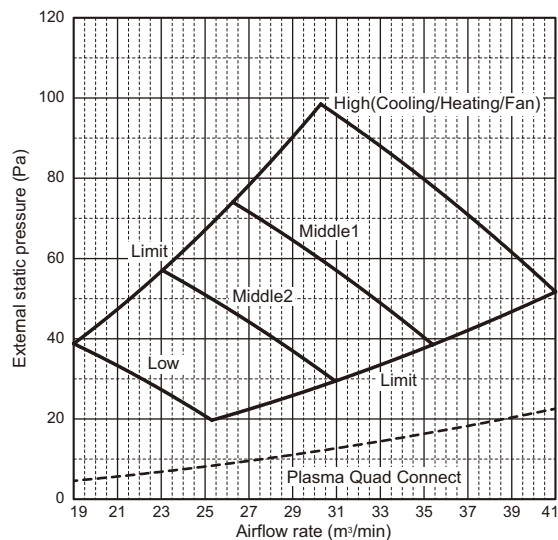
External static pressure : 50Pa

Power source : 220-240V

**PEFY-MS100VMA(L)-A**

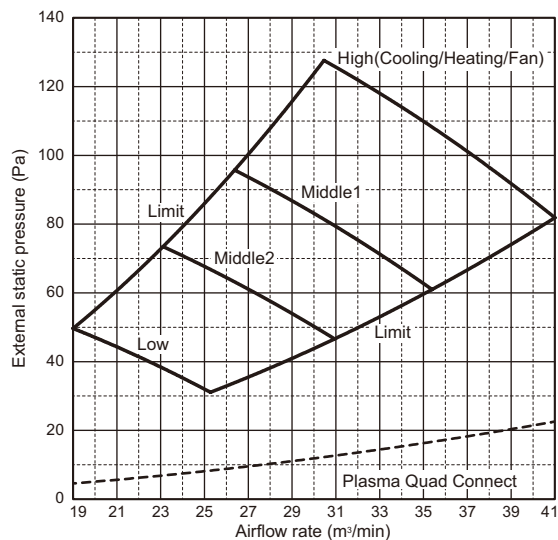
External static pressure : 70Pa

Power source : 220-240V

**PEFY-MS100VMA(L)-A**

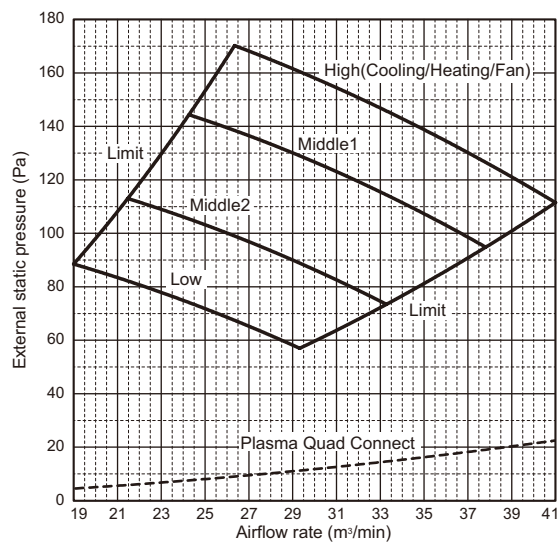
External static pressure : 100Pa

Power source : 220-240V

**PEFY-MS100VMA(L)-A**

External static pressure : 150Pa

Power source : 220-240V

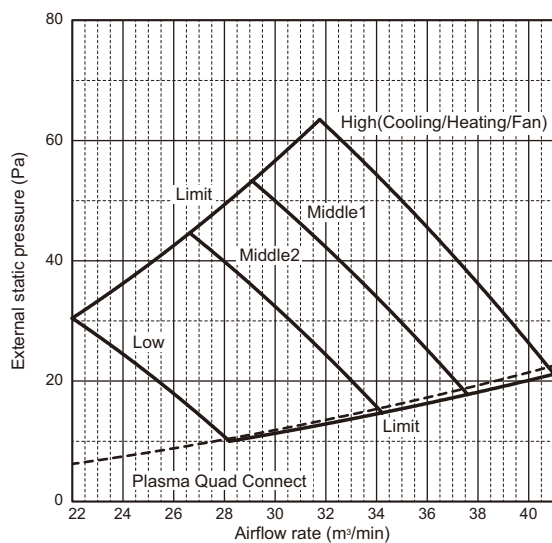


♦The fan characteristic curves (solid line) are the data with no optional parts attached.

PEFY-MS125VMA(L)-A

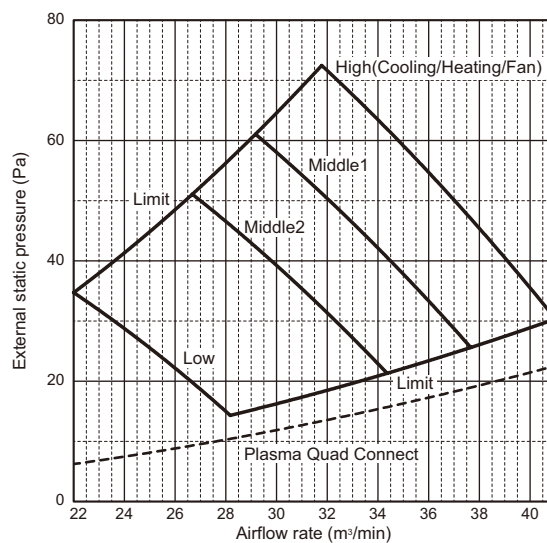
External static pressure : 40Pa

Power source : 220-240V

**PEFY-MS125VMA(L)-A**

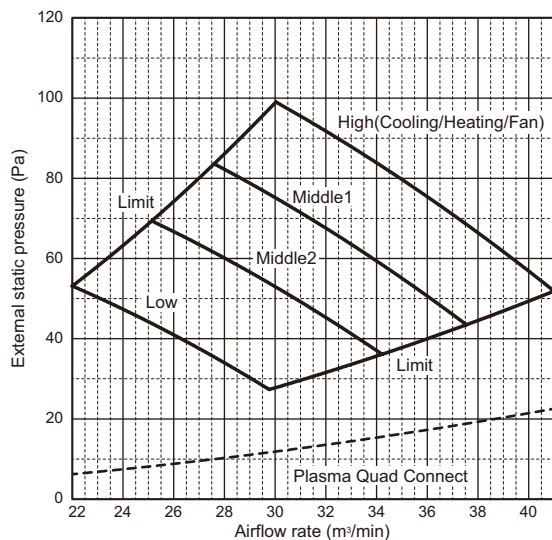
External static pressure : 50Pa

Power source : 220-240V

**PEFY-MS125VMA(L)-A**

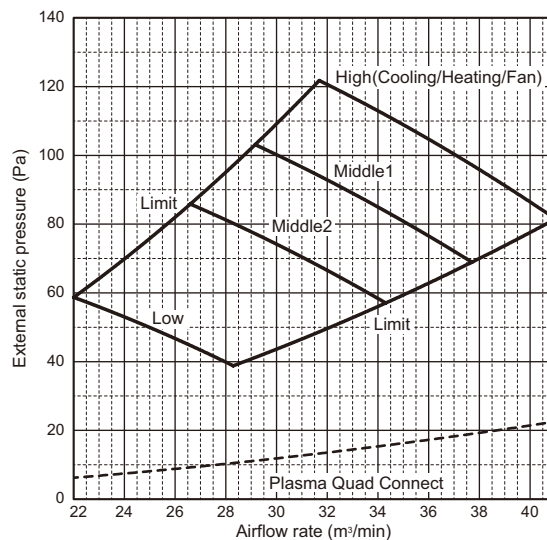
External static pressure : 70Pa

Power source : 220-240V

**PEFY-MS125VMA(L)-A**

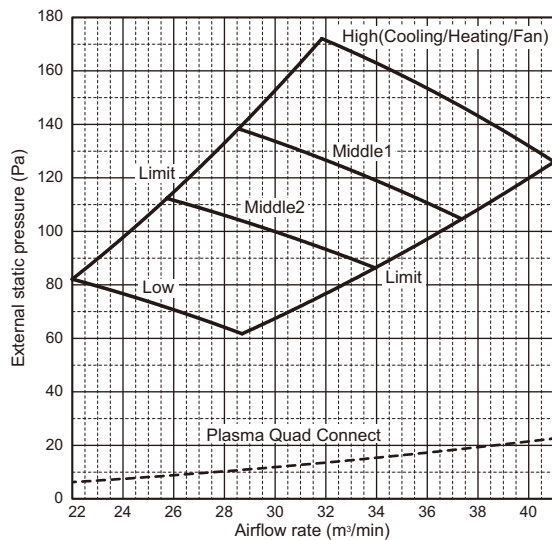
External static pressure : 100Pa

Power source : 220-240V

**PEFY-MS125VMA(L)-A**

External static pressure : 150Pa

Power source : 220-240V



• The fan characteristic curves (solid line) are the data with no optional parts attached.

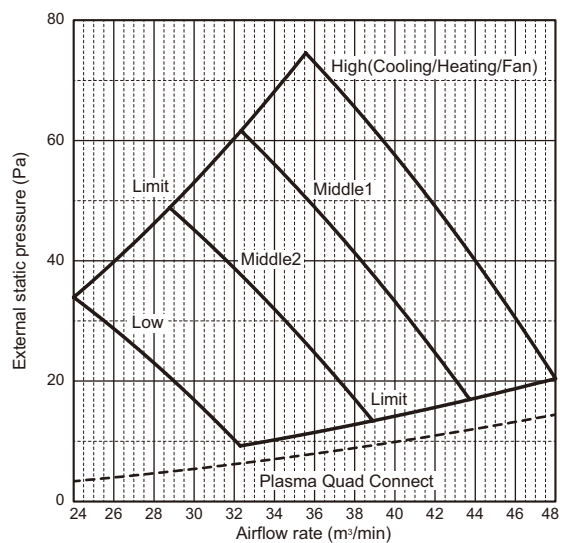
6. FAN CHARACTERISTICS CURVES

Ceiling concealed (Medium static pressure type)

PEFY-MS140VMA(L)-A

External static pressure : 40Pa

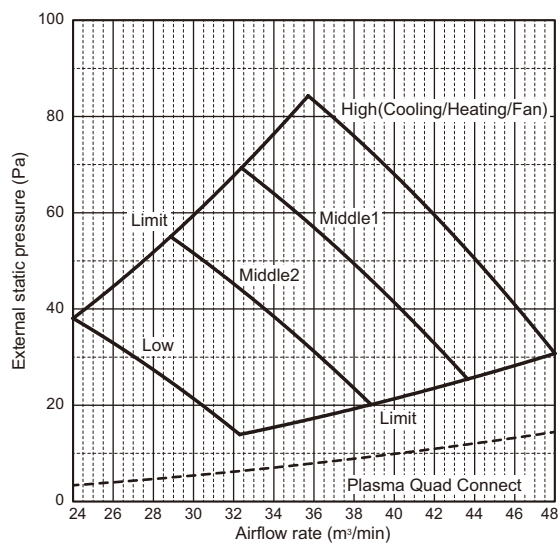
Power source : 220-240V



PEFY-MS140VMA(L)-A

External static pressure : 50Pa

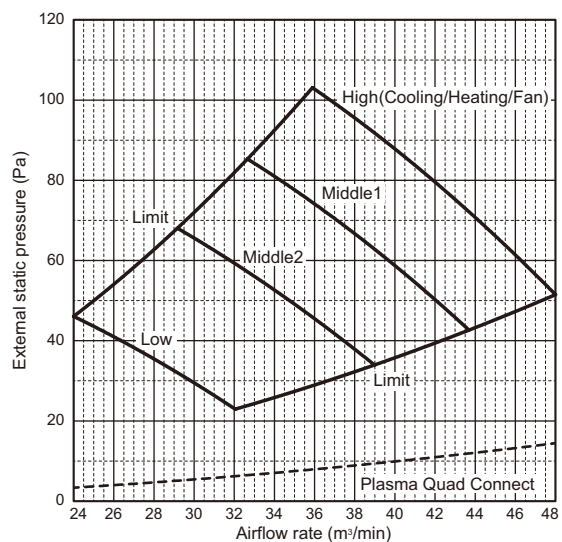
Power source : 220-240V



PEFY-MS140VMA(L)-A

External static pressure : 70Pa

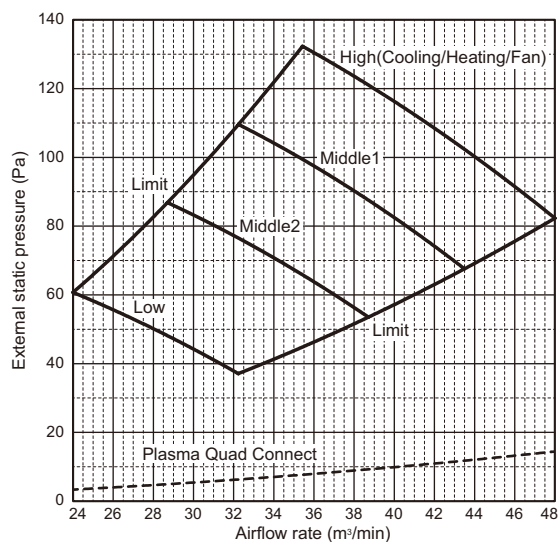
Power source : 220-240V



PEFY-MS140VMA(L)-A

External static pressure : 100Pa

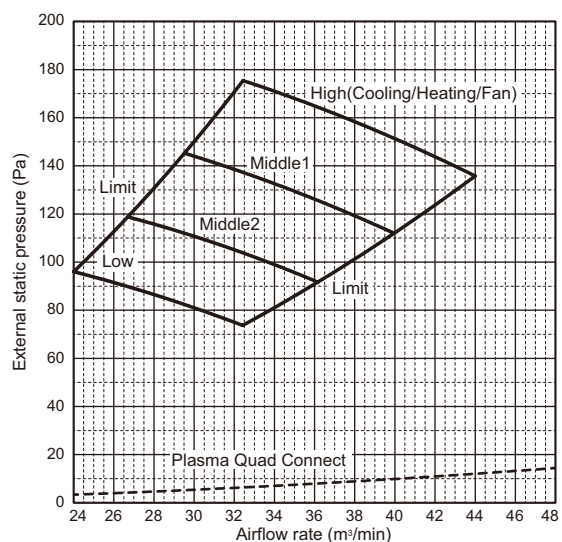
Power source : 220-240V



PEFY-MS140VMA(L)-A

External static pressure : 150Pa

Power source : 220-240V



♦The fan characteristic curves (solid line) are the data with no optional parts attached.

7. ELECTRICAL CHARACTERISTICS

Ceiling concealed (Medium static pressure type)

Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)

IFM (Indoor Fan Motor), Output (Fan motor rated output)

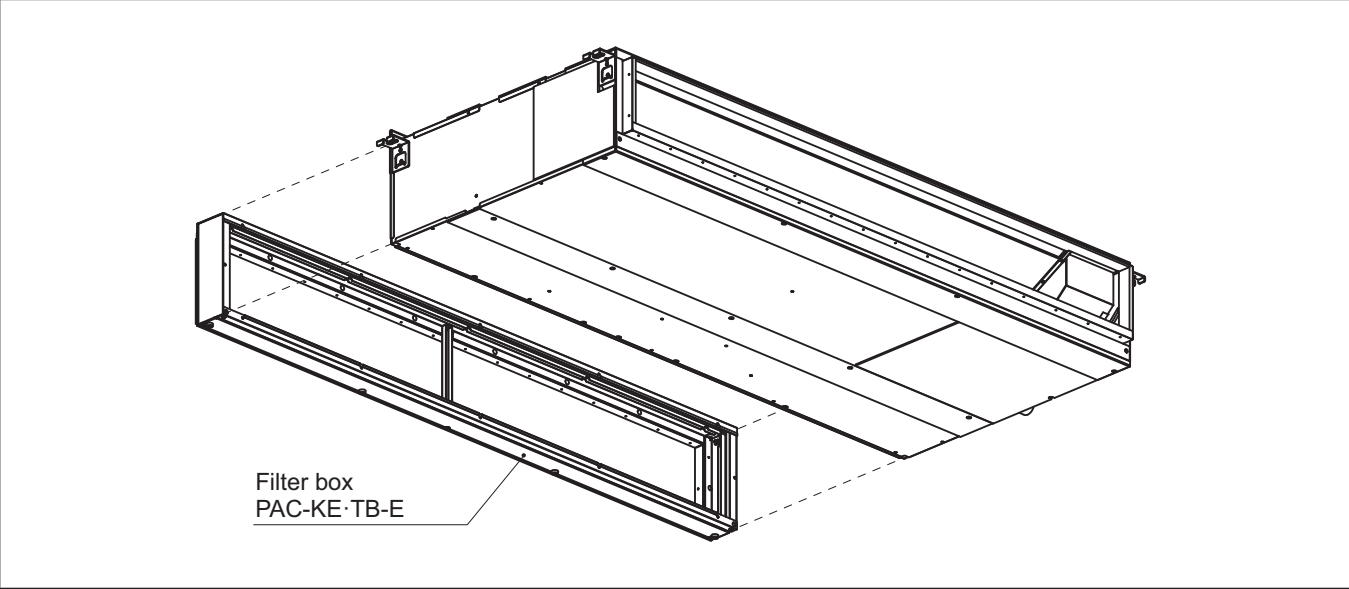
PEFY-MS-VMA(L)-A	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA (A)	Output (kW)	FLA (A)
PEFY-MS20VMA(L)-A	220-240V/50Hz	Max.: 264V Min.: 198V	0.93	0.085	0.74
PEFY-MS25VMA(L)-A			0.93	0.085	0.74
PEFY-MS32VMA(L)-A			1.19	0.085	0.95
PEFY-MS40VMA(L)-A			1.53	0.121	1.22
PEFY-MS50VMA(L)-A			2.13	0.121	1.70
PEFY-MS63VMA(L)-A			2.20	0.121	1.76
PEFY-MS71VMA(L)-A			2.35	0.300	1.88
PEFY-MS80VMA(L)-A			2.35	0.300	1.88
PEFY-MS100VMA(L)-A			2.81	0.300	2.25
PEFY-MS125VMA(L)-A			2.93	0.300	2.34
PEFY-MS140VMA(L)-A			3.29	0.300	2.63

PEFY-MS-VMA(L)-A

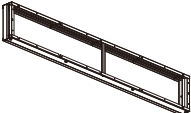
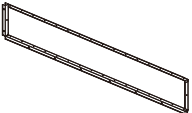
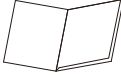
8-1. Optional parts line up for the Indoor unit

	Filter box	Plasma Quad Connect	PQ attachment (Rear inlet)	PQ attachment (Bottom inlet)	PQ box
PEFY-MS20, 25, 32VMA(L)-A	PAC-KE91TB-E	MAC-100FT-E	PAC-HA31PAR	PAC-HA31PAU	PAC-KE91PTB-E
PEFY-MS40VMA(L)-A	PAC-KE92TB-E	MAC-100FT-E	PAC-HA31PAR	PAC-HA31PAU	PAC-KE92PTB-E
PEFY-MS50, 63VMA(L)-A	PAC-KE93TB-E	MAC-100FT-E	PAC-HA31PAR	PAC-HA31PAU	PAC-KE93PTB-E
PEFY-MS71, 80, 100, 125VMA(L)-A	PAC-KE94TB-E	MAC-100FT-E	PAC-HA31PAR	PAC-HA31PAU	PAC-KE94PTB-E
PEFY-MS140VMA(L)-A	PAC-KE95TB-E	MAC-100FT-E	PAC-HA31PAR	PAC-HA31PAU	PAC-KE95PTB-E

● PEFY-MS-VMA(L)-A



8-2. Filter box

PAC-KE-TB-E					
Item	1 Screw	2 Filter box	3 FLANGE	4 Installation manual	
Quantity	PAC-KE91TB-E: 20 PAC-KE92, 93TB-E: 24 PAC-KE94, 95TB-E: 30	1	1	1	
Shape					

Detailed installation information should be referred to its Installation Manual.

PEFY-MS-VMA(L)-A

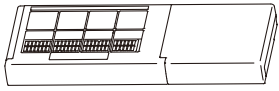
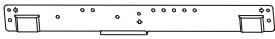
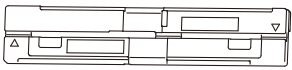
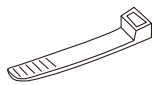
8-3. Plasma Quad Connect

Static pressure loss is referred to 6 "FAN CHARACTERISTICS CURVES".

Plasma Quad Connect (MAC-100FT-E) should be used together with PQ box or PQ attachment (PAC-HA31PAR or PAC-HA31PAU).

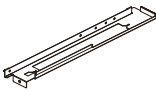
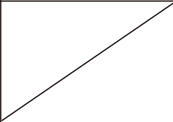
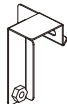
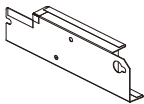
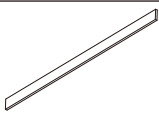
*Attaching the Plasma Quad Connect increases the pressure loss. Adjust the external static pressure setting as necessary. For the adjustment procedure, see the Installation Manual for the indoor unit.

Plasma Quad Connect (MAC-100FT-E)

Item	Plasma Quad Connect (with connecting cable)	Installation plate	Fixing screw for Plasma Quad Connect and Installation plate 4 × 25 mm
Quantity	1	1	5
Shape			
Item	Spacer Note: The spacer is used as packaging material.	Mounting cord clamp	Cable tie
Quantity	1	1	1
Shape			
Item	Screw for Mounting cord clamp 4 × 16 (Use when joining room air conditioner parts)		
Quantity	1		
Shape			

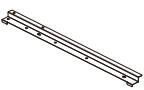
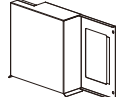
Detailed installation information should be referred to its Installation Manual.

PQ attachment (Rear inlet) (PAC-HA31PAR)

Item	PLATE 1	PLATE 2	PLATE 3	PLATE 4	Screw (4 × 10)	Screw (5 × 10)	RUBBER PLATE
Quantity	1	—	1	1	3	2	2
Shape							

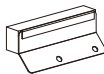
Detailed installation information should be referred to its Installation Manual.

PQ attachment (Bottom inlet) (PAC-HA31PAU)

Item	PLATE 1	PLATE 2	PLATE 3	PLATE 4	Screw (4 × 10)	CABLE STRAP	WIRE SADDLE	RUBBER PLATE
Quantity	1	1	1	1	9	1	1	2
Shape								

Detailed installation information should be referred to its Installation Manual.

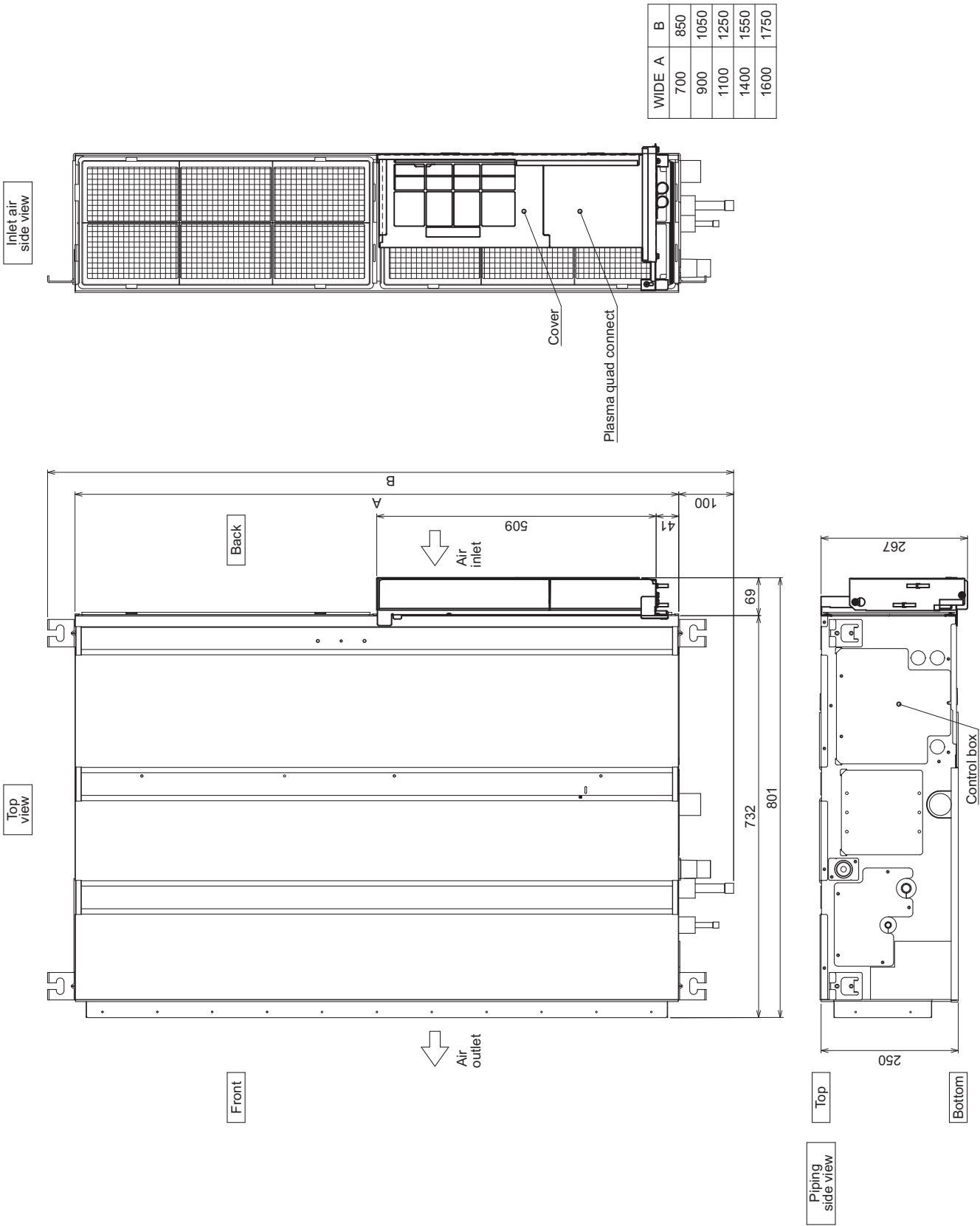
PQ box (PAC-KE91, 92, 93, 94, 95PTB-E)

Item	Screw (4 × 10)	CABLE STRAP	SUCTION FLANGE	WIRING COVER	RUBBER PLATE
Quantity	22 (PAC-KE91PTB-E) 26 (PAC-KE92, 93PTB-E) 32 (PAC-KE94, 95PTB-E)	2	1	1	2
Shape					

Detailed installation information should be referred to its Installation Manual.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A
with PQ attachment (Rear inlet) and Plasma Quad Connect

Unit: mm



Model	WIDE A	B
PEFY-MS20,25,32VMA(L)-A	700	850
PEFY-MS40VMA(L)-A	900	1050
PEFY-MS50,63VMA(L)-A	1100	1250

Model	WIDE A	B
PEFY-MS71,80,100,125VMA(L)-A	1400	1550
PEFY-MS140VMA(L)-A	1600	1750

The drawing above is a sample image of the optional parts being installed on a unit.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A with PQ attachment (Rear inlet) and Plasma Quad Connect

Unit: mm

[Maintenance access space]
 Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
 Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig. 1)
 • Create access door 1 and 2 (450x450mm each) as shown in Fig. 2.
 (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
 (At least 20mm of space should be left below the unit as shown in Fig. 3.)
 • Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig. 4.
 or
 • Create access door 4 below the control box and the unit as shown in Fig. 5.

(3) For maintenance if there is more than 170mm from the top surface, the cover can be pulled out without removing the PQ attachment. (Fig. 1, Fig. 3)

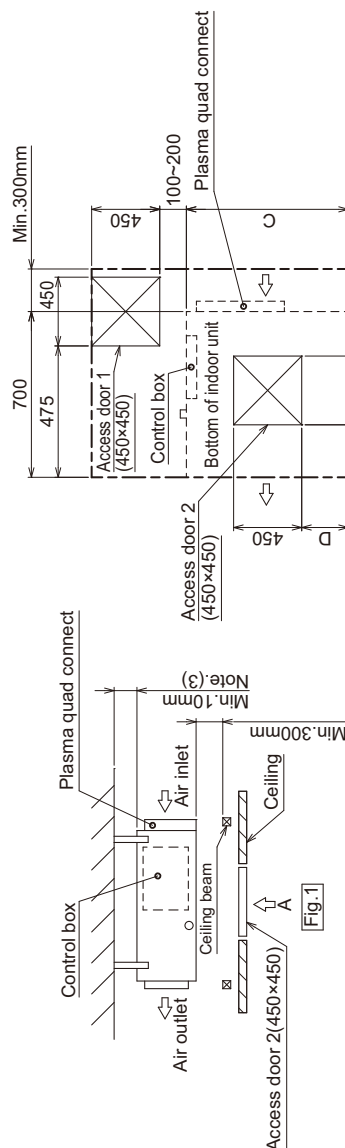


Fig. 2 (Viewed from the direction of the arrow A)

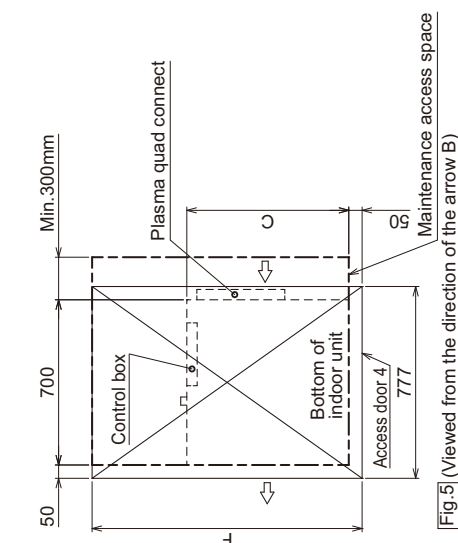
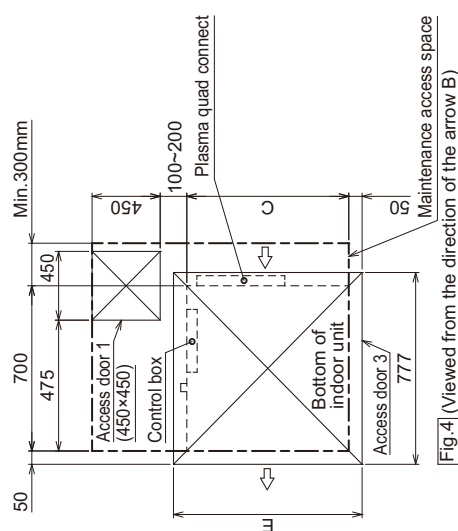


Fig. 4 (Viewed from the direction of the arrow B)

WIDE C	D	E	F
700	50~150	800	1300
900	150~250	1000	1500
1100	250~350	1200	1700
1400	400~500	1500	2000
1600	500~600	1700	2200

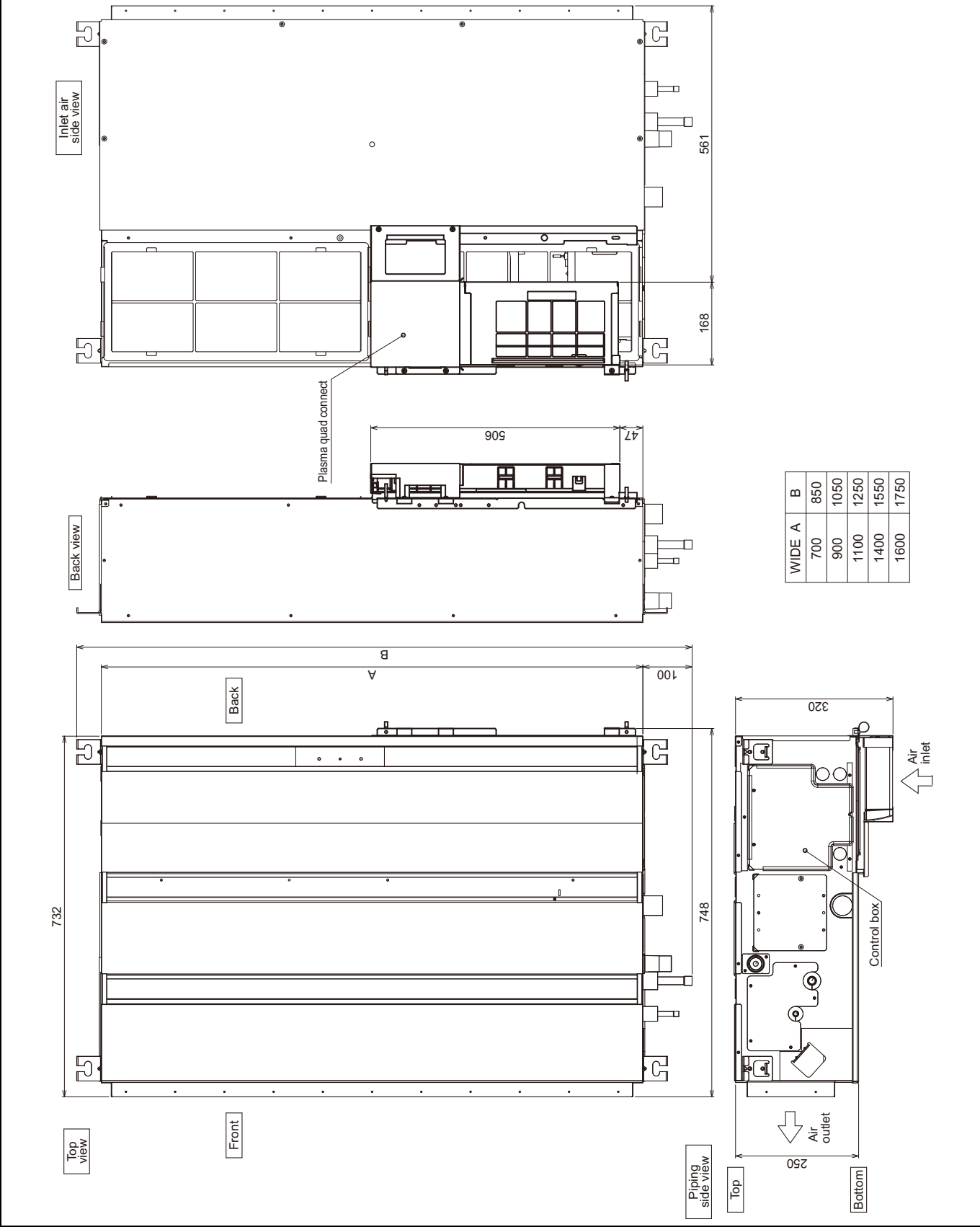
Model	WIDE C	D	E	F
PEFY-MS20,25,32VMA(L)-A	700	50~150	800	1300
PEFY-MS40VMA(L)-A	900	150~250	1000	1500
PEFY-MS50,63VMA(L)-A	1100	250~350	1200	1700

Model	WIDE C	D	E	F
PEFY-MS71,80,100,125VMA(L)-A	1400	400~500	1500	2000
PEFY-MS140VMA(L)-A	1600	500~600	1700	2200

The drawing above is a sample image of the optional parts being installed on a unit.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A
with PQ attachment (Bottom inlet) and Plasma Quad Connect

Unit: mm



Model	WIDE A	B
PEFY-MS20,25,32VMA(L)-A	700	850
PEFY-MS40VMA(L)-A	900	1050
PEFY-MS50,63VMA(L)-A	1100	1250

Model	WIDE A	B
PEFY-MS71,80,100,125VMA(L)-A	1400	1550
PEFY-MS140VMA(L)-A	1600	1750

The drawing above is a sample image of the optional parts being installed on a unit.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A
with PQ attachment (Bottom inlet) and Plasma Quad Connect

Unit: mm

[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig. 1)

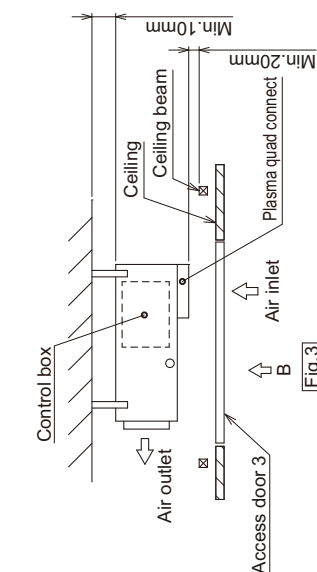
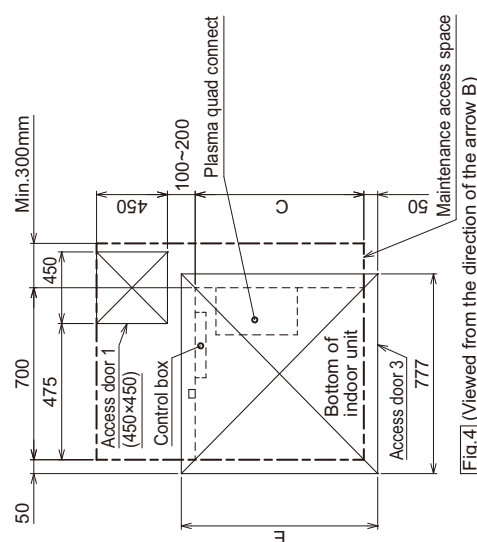
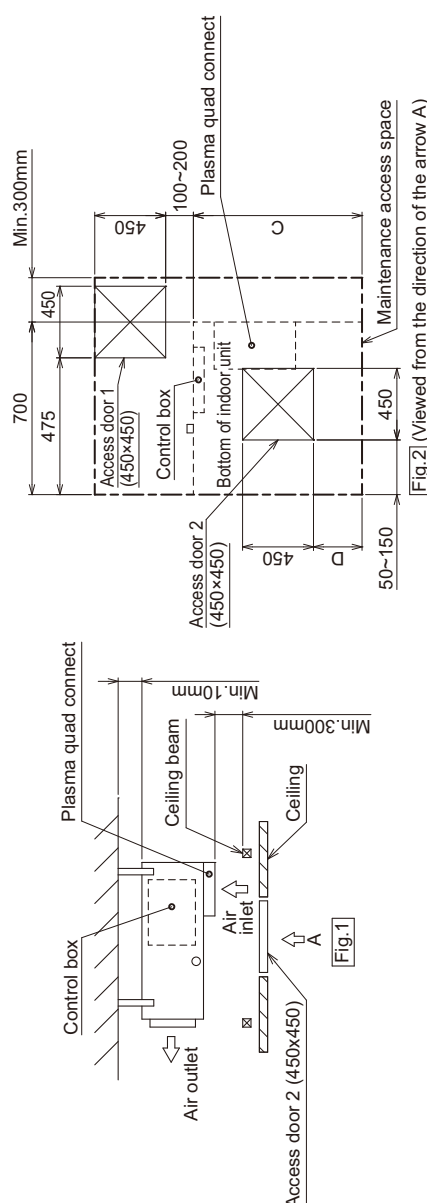
- Create access door 1 and 2 (450x450mm each) as shown in Fig. 2.

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig. 3.)

- Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig. 4.

or

- Create access door 4 below the control box and the unit as shown in Fig. 5.



WIDE C	D	E	F
700	50~150	800	1300
900	150~250	1000	1500
1100	250~350	1200	1700
1400	400~500	1500	2000
1600	500~600	1700	2200

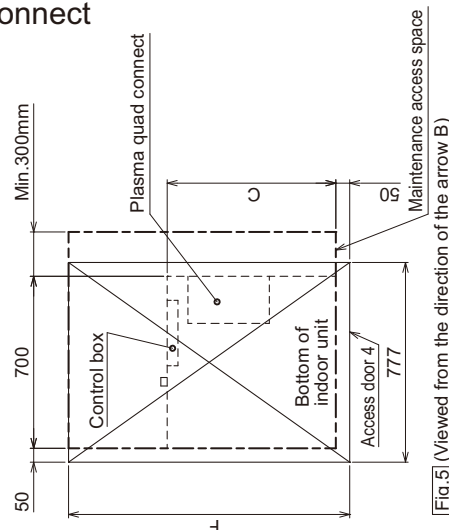


Fig. 5

Fig. 4 (Viewed from the direction of the arrow B)

Model	WIDE C	D	E	F
PEFY-MS20,25,32VMA(L)-A	700	50~150	800	1300
PEFY-MS40VMA(L)-A	900	150~250	1000	1500
PEFY-MS50,63VMA(L)-A	1100	250~350	1200	1700

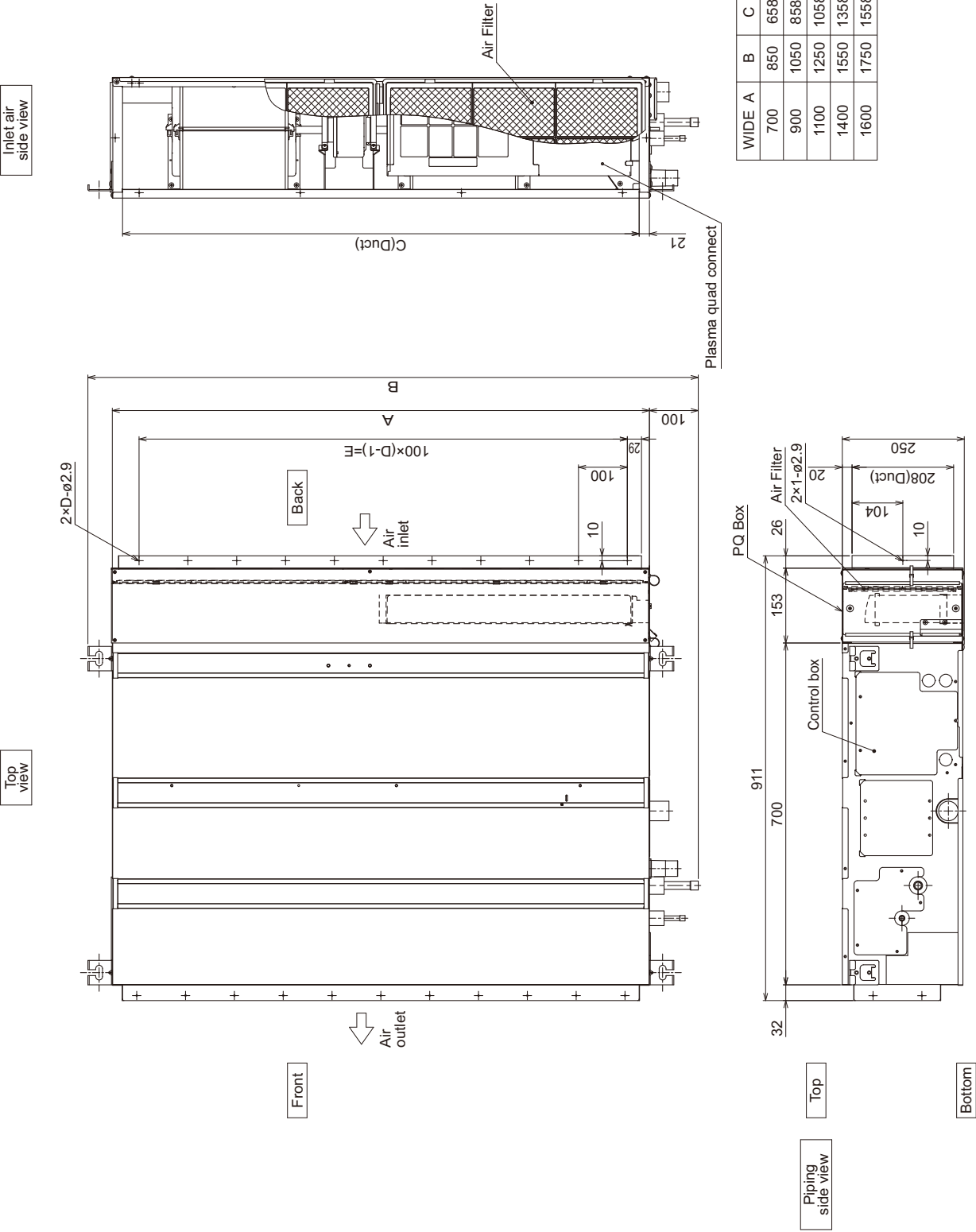
Model	WIDE C	D	E	F
PEFY-MS71,80,100,125VMA(L)-A	1400	400~500	1500	2000
PEFY-MS140VMA(L)-A	1600	500~600	1700	2200

The drawing above is a sample image of the optional parts being installed on a unit.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A
with PQ box and Plasma Quad Connect

Unit: mm

PEFY-MS-VMA(L)-A



Model	WIDE A	B	C	D	E
PEFY-MS20,25,32VMA(L)-A	700	850	658	7	600
PEFY-MS40VMA(L)-A	900	1050	858	9	800
PEFY-MS50,63VMA(L)-A	1100	1250	1058	11	1000

Model	WIDE A	B	C	D	E
PEFY-MS71,80,100,125VMA(L)-A	1400	1550	1358	14	1300
PEFY-MS140VMA(L)-A	1600	1750	1558	16	1500

The drawing above is a sample image of the optional parts being installed on a unit.

PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A with PQ box and Plasma Quad Connect

Unit: mm

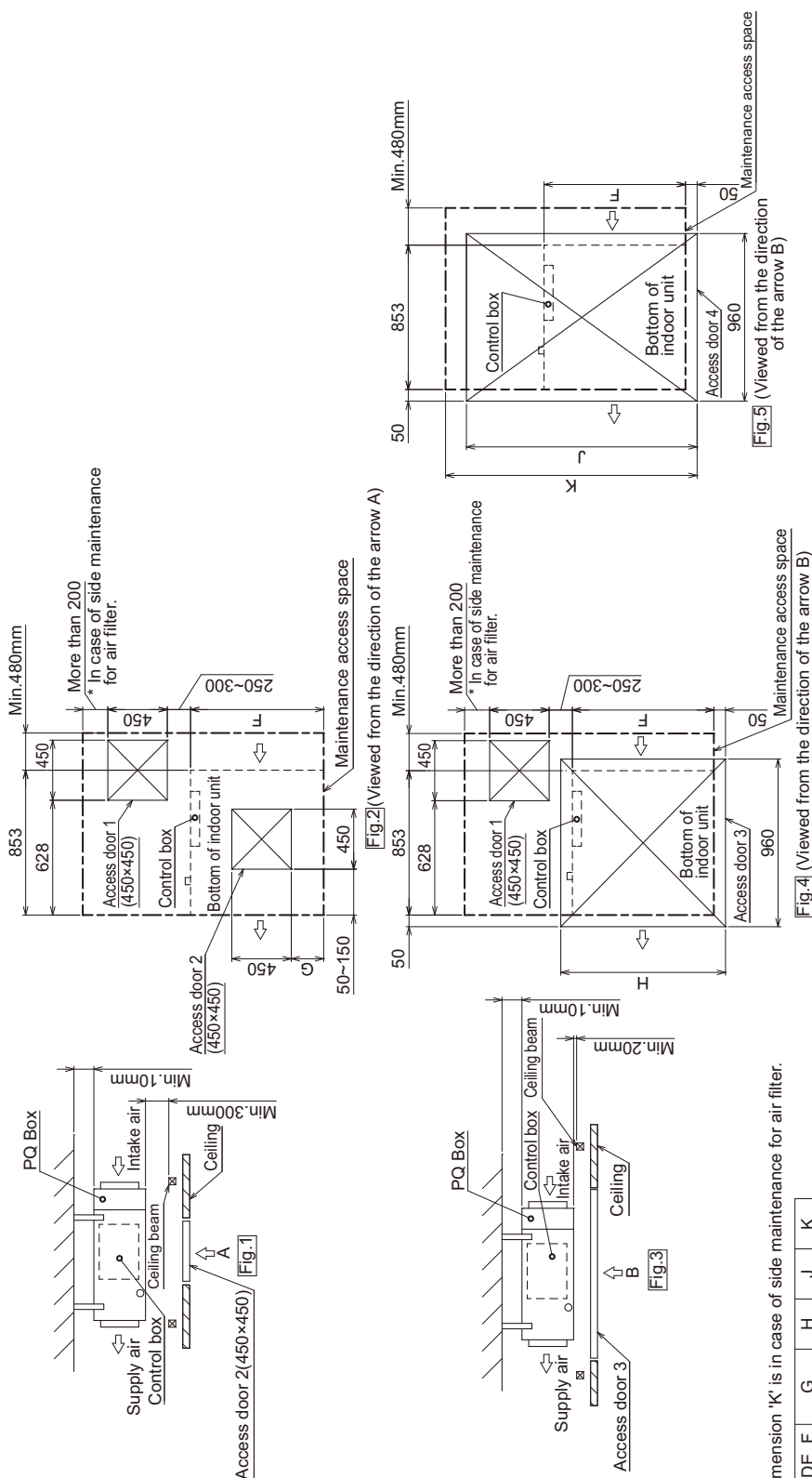
[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig. 1)

- Create access door 1 and 2 (450×450mm each) as shown in Fig. 2.
(Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig. 3.)

- Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig. 4.
or
- Create access door 4 below the control box and the unit as shown in Fig. 5.



* Dimension 'K' is in case of side maintenance for air filter.

WIDE F	G	H	J	K
700	50~150	800	1300	1450
900	150~250	1000	1500	1850
1100	250~350	1200	1700	2150
1400	400~500	1500	2000	2150
1600	500~600	1700	2200	2550

Model	WIDE F	G	H	J	K
PEFY-MS20,25,32VMA(L)-A	700	50~150	800	1300	1450
PEFY-MS40VMA(L)-A	900	150~250	1000	1500	1850
PEFY-MS50,63VMA(L)-A	1100	250~350	1200	1700	-

Model	WIDE F	G	H	J	K
PEFY-MS71,80,100,125VMA(L)-A	1400	400~500	1500	2000	2150
PEFY-MS140VMA(L)-A	1600	500~600	1700	2200	2550

The drawing above is a sample image of the optional parts being installed on a unit.

PCFY-MS-VKM-E

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1. SPECIFICATIONS

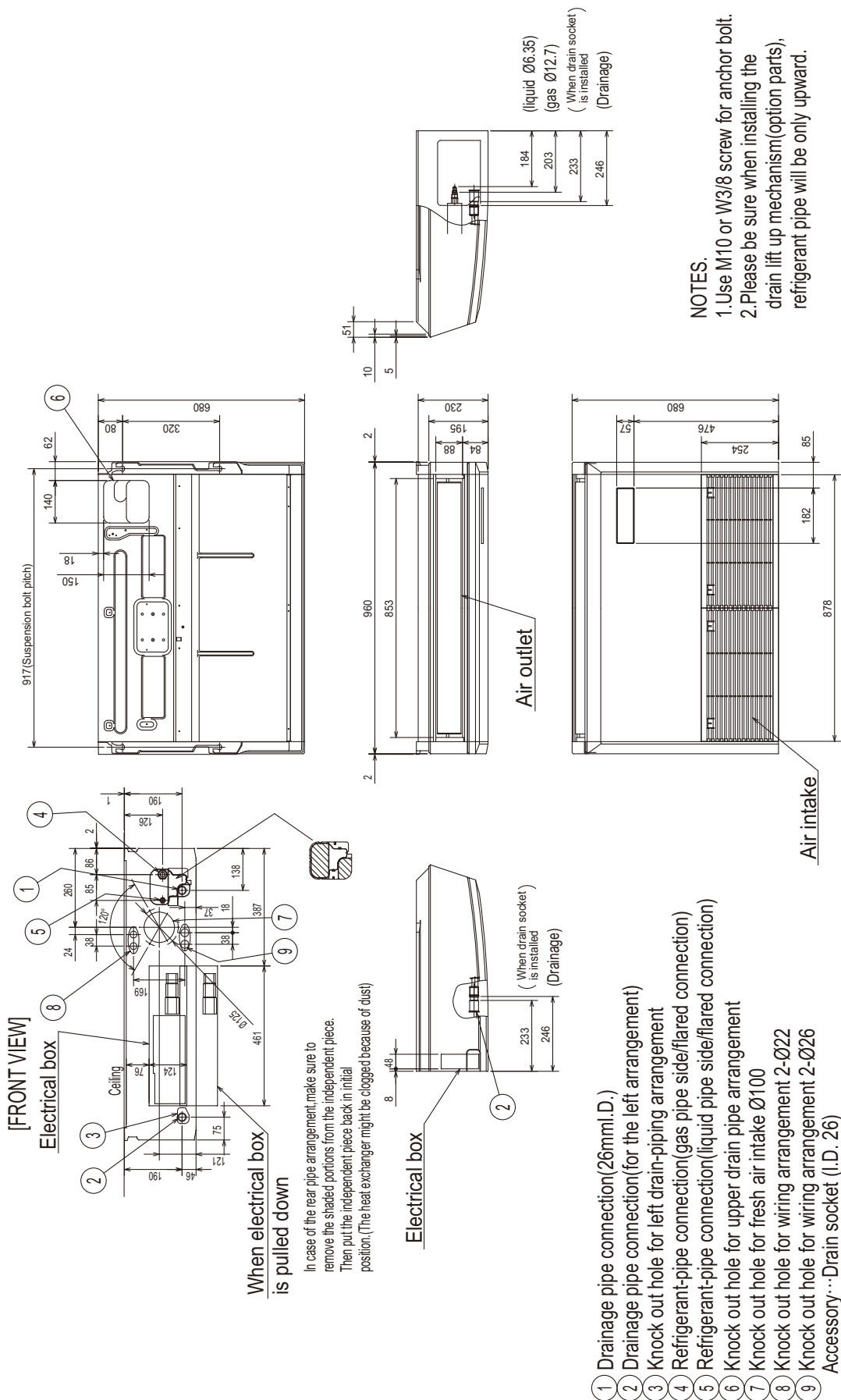
Ceiling suspended

Model			PCFY-MS40VKM-E	PCFY-MS63VKM-E	PCFY-MS100VKM-E	PCFY-MS125VKM-E
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz
Cooling capacity (Nominal)	*1	kW	4.5	7.1	11.2	14.0
	*1	BTU / h	15,400	24,200	38,200	47,800
(220V)	Power input	kW	0.04	0.05	0.09	0.11
	Current input	A	0.28	0.33	0.65	0.76
Heating capacity (Nominal)	*2	kW	5.0	8.0	12.5	16.0
	*2	BTU / h	17,100	27,300	42,700	54,600
(220V)	Power input	kW	0.04	0.05	0.09	0.11
	Current input	A	0.28	0.33	0.65	0.76
External finish			MUNSELL (6.4Y 8.9/0.4)	MUNSELL (6.4Y 8.9/0.4)	MUNSELL (6.4Y 8.9/0.4)	MUNSELL (6.4Y 8.9/0.4)
External dimension HxWxD		mm	230x960x680	230x1280x680	230x1600x680	230x1600x680
		in.	9-1/16 x 37-13/16 x 26-3/4	9-1/16 x 50-3/8 x 26-3/4	9-1/16 x 63 x 26-3/4	9-1/16 x 63 x 26-3/4
Net weight		kg(lbs)	25 (55)	32 (71)	37 (82)	39 (86)
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity		Sirocco fan x 2	Sirocco fan x 3	Sirocco fan x 4	Sirocco fan x 4
	External static press.	Pa	0	0	0	0
		mmH ₂ O	0	0	0	0
	Motor Type		DC motor	DC motor	DC motor	DC motor
	Motor output		kW	0.090	0.095	0.160
	Driving mechanism		Direct-drive	Direct-drive	Direct-drive	Direct-drive
	Air flow rate (Low-Mid2-Mid1-High)	m ³ / min	10-11-12-13	14-15-16-18	21-24-26-28	21-24-27-31
		L/s	167-183-200-217	233-250-267-300	350-400-433-467	350-400-450-517
		cfm	353-388-424-459	494-530-565-636	742-847-918-989	742-847-953-1095
Sound pressure level (measured in anechoic room)		dB <A>	29-32-34-36	31-33-35-37	36-38-41-43	36-39-42-44
Insulation material			Polyeter sheet	Polyeter sheet	Polyeter sheet	Polyeter sheet
Air filter			PP honeycomb	PP honeycomb	PP honeycomb	PP honeycomb
Protection device			Fuse	Fuse	Fuse	Fuse
Refrigerant control device			LEV (RH50B088H01) (PAM 4 ton)	LEV (RH50B088H01) (PAM 4 ton)	LEV (RH50B089H01) (PAM 8 ton)	LEV (RH50B089H01) (PAM 8 ton)
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI
Diameter of refrigerant pipe	Liquid	mm(in.)	6.35(1/4) Flare	9.52(3/8) Flare	9.52(3/8) Flare	9.52(3/8) Flare
	Gas	mm(in.)	12.70(1/2) Flare	15.88(5/8) Flare	15.88(5/8) Flare	15.88(5/8) Flare
Field drain pipe size		mm(in.)	O.D. 26mm(1)	O.D. 26mm(1)	O.D. 26mm(1)	O.D. 26mm(1)
Drawing	External		-	-	-	-
	Wiring		-	-	-	-
	Refrigerant cycle		-	-	-	-
Standard attachment	Document		Installation Manual, Instruc- tion Book	Installation Manual, Instruc- tion Book	Installation Manual, Instruc- tion Book	Installation Manual, Instruc- tion Book
	Accessory		-	-	-	-
Optional parts	Drain pump kit		PAC-SJ92DM-E	PAC-SJ93DM-E	PAC-SJ93DM-E	PAC-SJ93DM-E
	High efficiency filter		PAC-SH88KF-E	PAC-SH89KF-E	PAC-SH90KF-E	PAC-SH90KF-E
	Wireless remote controller kit		PAR-FL32MA, PAR-SL101A-E	PAR-FL32MA, PAR-SL101A-E	PAR-FL32MA, PAR-SL101A-E	PAR-FL32MA, PAR-SL101A-E
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.	* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.	* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.	* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual.

Notes:	*1 Nominal cooling conditions (subject to JIS B8615-1)	*2 Nominal heating conditions (subject to JIS B8615-1)	Unit converter
	Indoor: 27°C.D.B./19°C.W.B. (81°F.D.B./66°F.W.B.) Outdoor: 35°C.D.B. (95°F.D.B.) Pipe length: 7.5 m (24-9/16 ft.) Level difference: 0 m (0 ft.)	20°C.D.B. (68°F.D.B.) 7°C.D.B./6°C.W.B. (45°F.D.B./43°F.W.B.) 7.5 m (24-9/16 ft.) 0 m (0 ft.)	BTU/h = kW x 3.412 cfm = m ³ /min x 35.31 lbs = kg / 0.4536 *The specification data is subject to rounding variation.

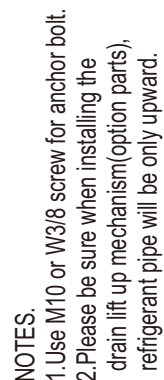
PCFY-MS40VKM-E

Unit: mm



PCFY-MS-VKM-E

Unit: mm



NOTES.

1. Use M10 or W3/8 screw for anchor bolt.
2. Please be sure when installing the drain lift up mechanism(option parts), refrigerant pipe will be only upward.

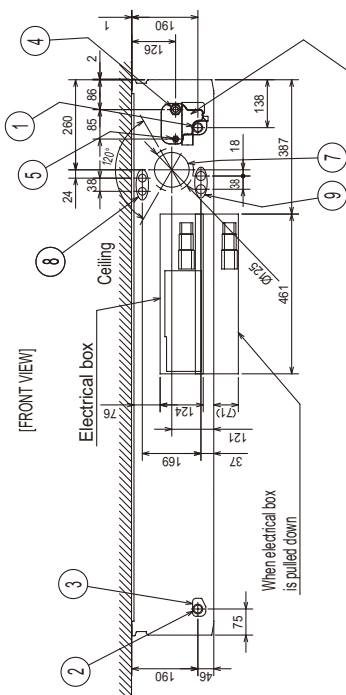
2. EXTERNAL DIMENSIONS

Ceiling suspended

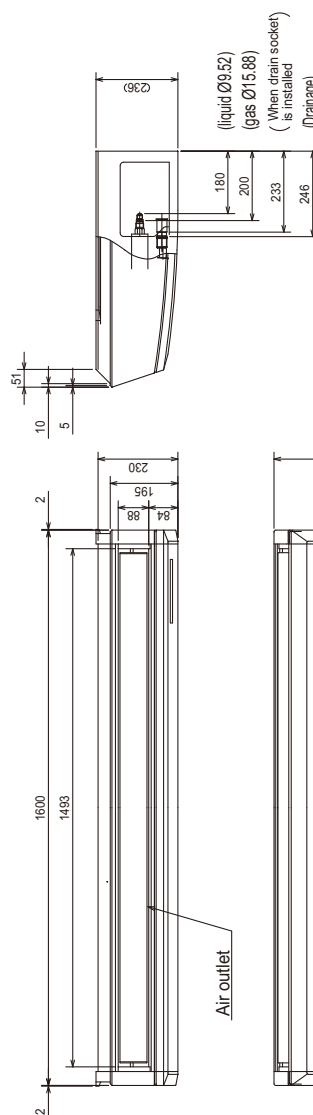
PCFY-MS100, 125VKM-E

Unit: mm

- ① Drainage pipe connection(26mm(I.D.))
 - ② Drainage pipe connection(for the left arrangement)
 - ③ Knock out hole for left drain-piping arrangement
 - ④ Refrigerant-pipe connection(gas pipe side/flared connection)
 - ⑤ Refrigerant-pipe connection(liquid pipe side/flared connection)
 - ⑥ Knock out hole for upper drain pipe arrangement
 - ⑦ Knock out hole for fresh air intake Ø100
 - ⑧ Knock out hole for wiring arrangement 2-Ø22
 - ⑨ Knock out hole for wiring arrangement 2-Ø26
- Accessory...Drain socket (I.D. 26)

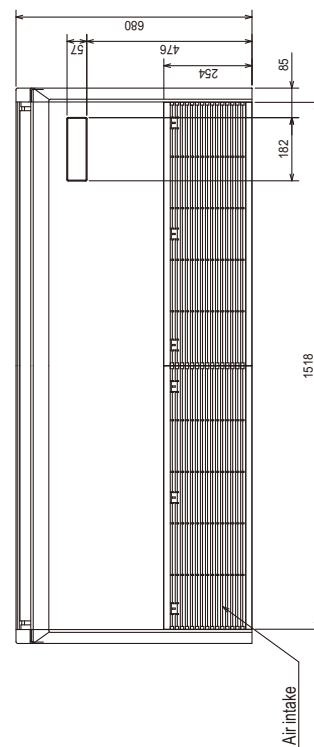


In case of the rear pipe arrangement, make sure to remove the shaded portions from the independent piece. Then put the independent piece back in initial position. (The heat exchanger might be clogged because of dust)

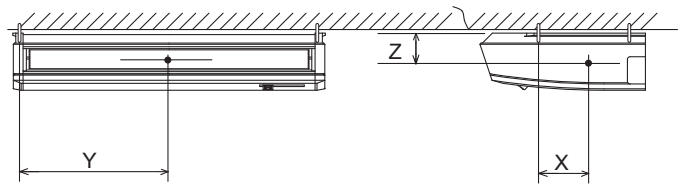


NOTES.

- NOTES:
1. Use M10 or W3/8 screw for anchor bolt.
 2. Please be sure when installing the drain lift up mechanism(option parts), refrigerant pipe will be only upward.



PCFY-MS40, 63, 100, 125VKM-E

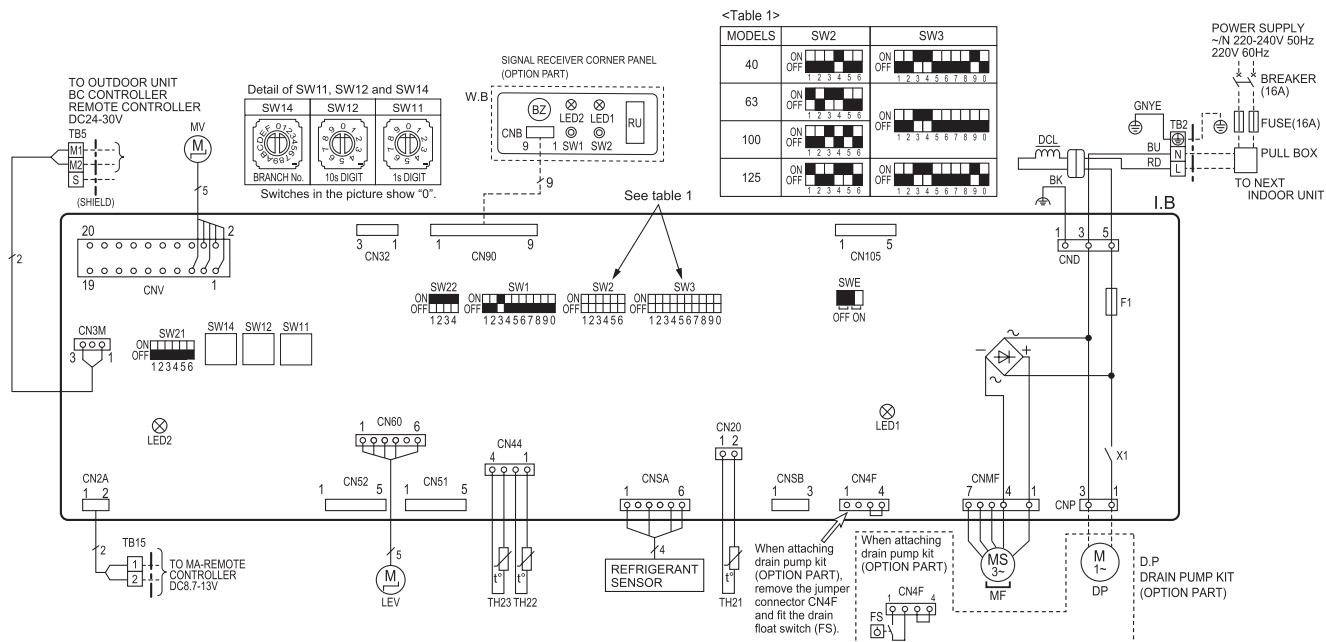


Model name	X	Y	Z
PCFY-MS40VKM-E	110	450	115
PCFY-MS63VKM-E	110	610	115
PCFY-MS100VKM-E	110	770	115
PCFY-MS125VKM-E	110	770	115

PCFY-MS-VKM-E

[LEGEND]

SYMBOL		NAME		SYMBOL		NAME		
I. B		INDOOR CONTROLLER BOARD		TB2	TERMINAL BLOCK	POWER SUPPLY		
	CN32	CONNECTOR	REMOTE SWITCH	TB5		TRANSMISSION		
	CN51		CENTRALLY CONTROL	TB15	MA-REMOTE CONTROLLER			
	CN52		REMOTE INDICATION	TH21	THERMISTOR	ROOM TEMP. DETECTION (0°C / 15kΩ, 25°C / 5.4kΩ)		
	CN105		IT TERMINAL			PIPE TEMP. DETECTION / LIQUID (0°C / 15kΩ, 25°C / 5.4kΩ)		
	F1		FUSE (T6.3AL250V)			TH22	PIPE TEMP. DETECTION / GAS (0°C / 15kΩ, 25°C / 5.4kΩ)	
	SW1	SWITCH	MODE SELECTION		OPTIONAL PARTS			
	SW2		CAPACITY CODE	TH23				
	SW3		MODE SELECTION					
	SW11		ADDRESS SETTING 1s DIGIT		W.B	PCB FOR WIRELESS REMOTE CONTROLLER		
	SW12		ADDRESS SETTING 10s DIGIT			BZ	BUZZER	
	SW14		BRANCH No.			LED1	LED (OPERATION INDICATION : GREEN)	
	SW21		CEILING HEIGHT SELECTOR			LED2	LED (PREPARATION FOR HEATING : ORANGE)	
			OPTION SELECTOR			RU	RECEIVING UNIT	
	SW22		PAIR NO. SETTING			SW1	EMERGENCY OPERATION (HEAT / DOWN)	
	SWE		DRAIN PUMP (TEST MODE)			SW2	EMERGENCY OPERATION (COOL / UP)	
	X1	AUX. RELAY	DRAIN PUMP (OPTIONAL PARTS)		D.P	DRAIN PUMP KIT		
LEV	LINEAR EXPANSION VALVE			DP		DRAIN PUMP		
DCL	REACTOR			FS		DRAIN FLOAT SWITCH		
MF	FAN MOTOR							
MV	VANE MOTOR							



Mark	Meaning	Function
LED1	Main power supply	Main Power supply (Indoor unit:220-240V AC) power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

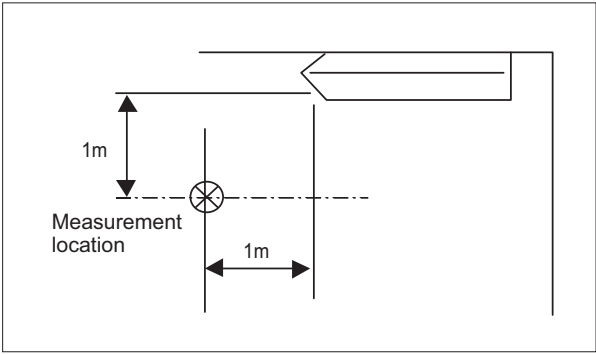
1. At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
2. In case of using MA-Remote controller, please connect to TB15.
(Remote controller wire is non-polar.)
3. In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
4. Symbol [S] of TB5 is the shield wire connection.
5. Symbols used in wiring diagram are, : terminal block, : connector.
6. The setting of the SW2, SW3 differs in the capacity. For the detail, see table 1.
7. The black square (■) in the wiring diagram indicates a switch position.

5-1. Sound levels

Ceiling suspended

Sound level at anechoic room: Low-Middle2-Middle1-High

Model	Sound level dB (A)
PCFY-MS40VKM-E	29-32-34-36
PCFY-MS63VKM-E	31-33-35-37
PCFY-MS100VKM-E	36-38-41-43
PCFY-MS125VKM-E	36-39-42-44



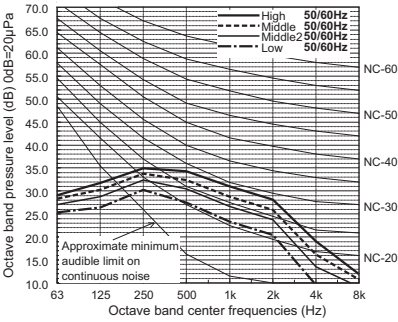
* Measured in anechoic room.

5-2. NC curves

PCFY-MS-VKM-E

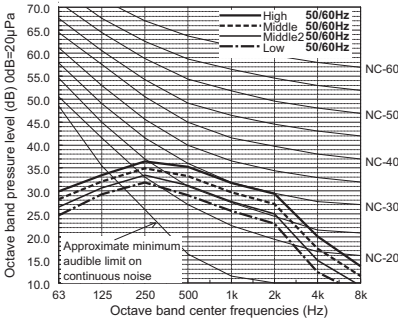
PCFY-MS40VKM

External Static Pressure: 0Pa
Power Source: 220-240V 50Hz/220V 60Hz



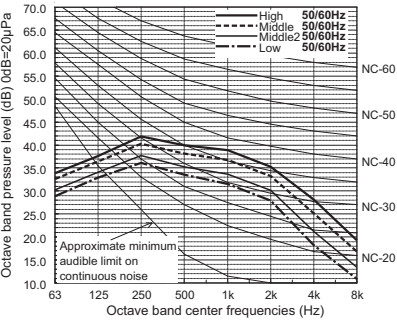
PCFY-MS63VKM

External Static Pressure: 0Pa
Power Source: 220-240V 50Hz/220V 60Hz



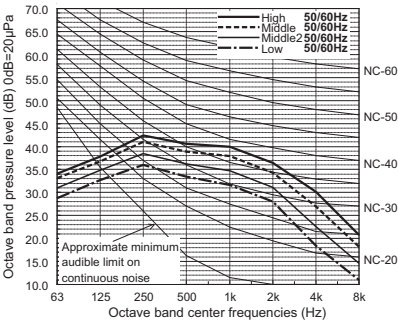
PCFY-MS100VKM

External Static Pressure: 0Pa
Power Source: 220-240V 50Hz/220V 60Hz



PCFY-MS125VKM

External Static Pressure: 0Pa
Power Source: 220-240V 50Hz/220V 60Hz



■ PCFY-MS40VKM-E



■ PCFY-MS63VKM-E

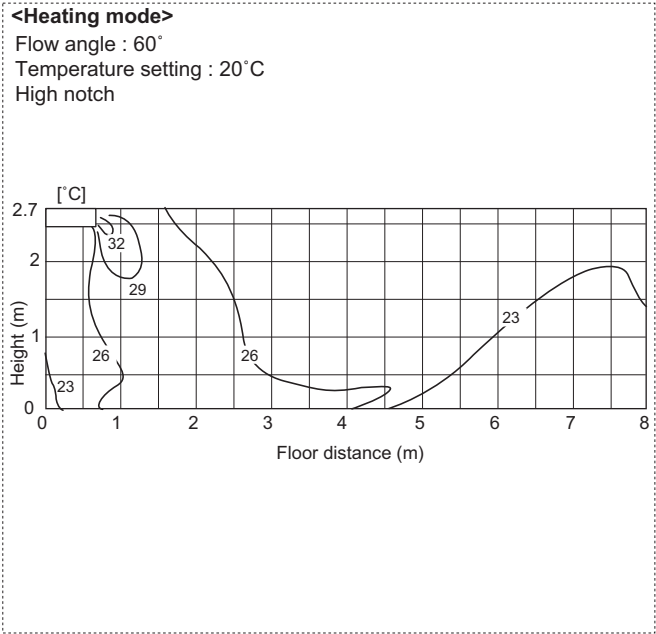
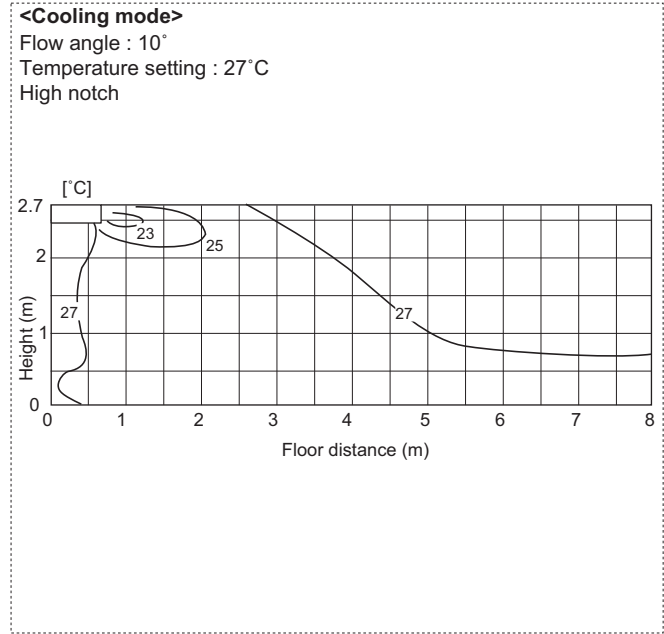


■ PCFY-MS100, 125VKM-E

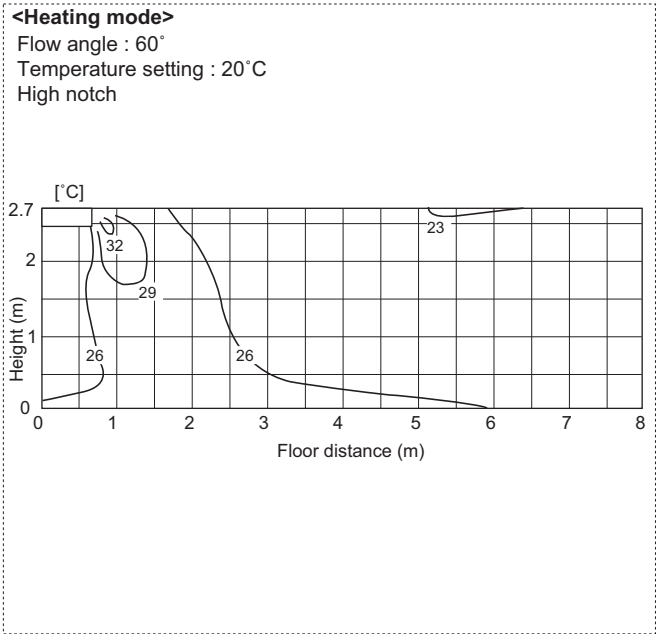
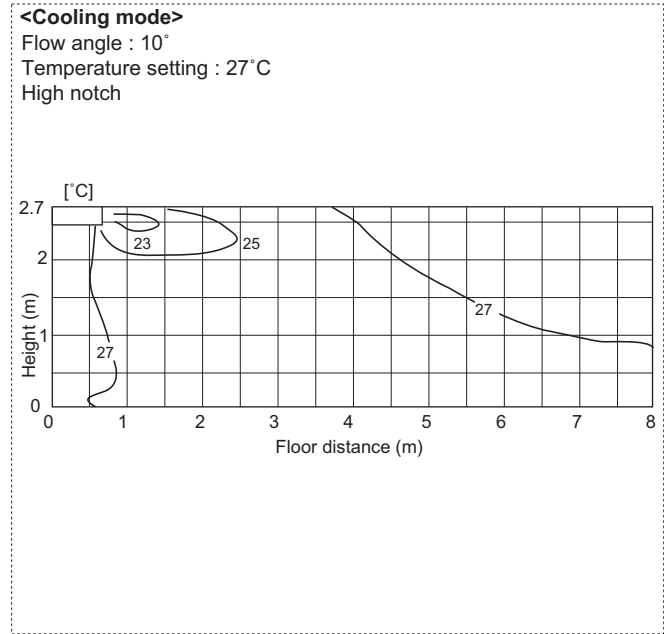


7-1. Temperature distributions

Temperature distributions
PCFY-MS40, 63VKM-E



PCFY-MS100, 125VKM-E



Note : These figures show typical airflow distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

PCFY-MS-VKM-E

7-2. Airflow distributions

Airflow distributions
PCFY-MS40, 63VKM-E

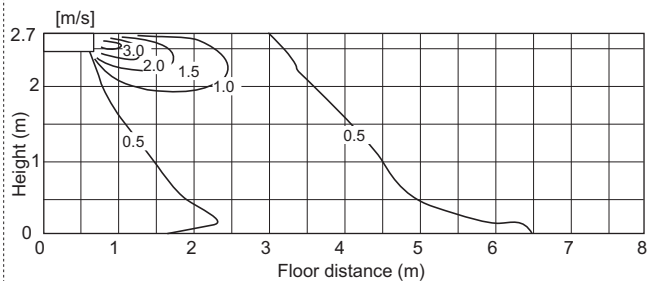
<Cooling mode>

Flow angle : 10°

Temperature setting : 27°C

High notch

Ceiling height : 2.7m



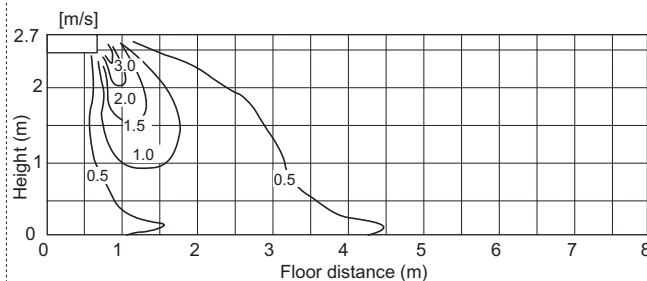
<Heating mode>

Flow angle : 60°

Temperature setting : 27°C

High notch

Ceiling height : 2.7m



PCFY-MS100, 125VKM-E

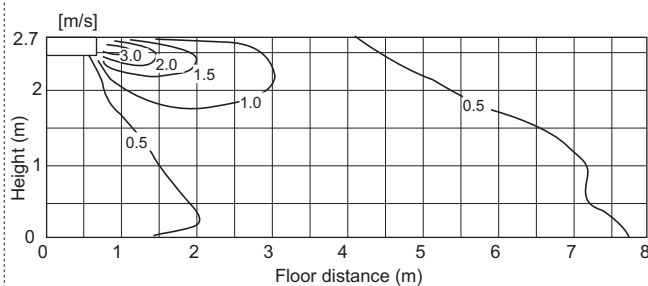
<Fan mode>

Flow angle : 10°

Temperature setting : 27°C

High notch

Ceiling height : 2.7m



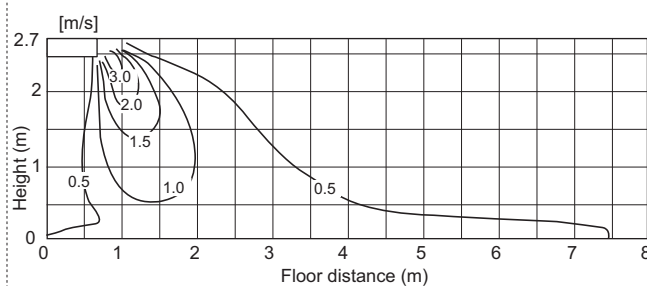
<Fan mode>

Flow angle : 60°

Temperature setting : 27°C

High notch

Ceiling height : 2.7m



Note : These figures show typical airflow distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)
IFM (Indoor Fan Motor), Output (Fan motor rated output)

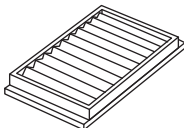
Model name	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A)	Output (kW)	FLA(A)
PCFY-MS40VKM-E	220-240V/50Hz 220V/60Hz	Max.: 264V Min.: 198V	0.35	0.090	0.28
PCFY-MS63VKM-E			0.41	0.095	0.33
PCFY-MS100VKM-E			0.81	0.160	0.65
PCFY-MS125VKM-E			0.95	0.160	0.76

PCFY-MS-VKM-E

9-1. Optional parts line up for the Indoor unit

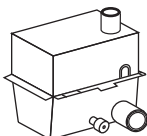
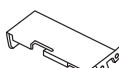
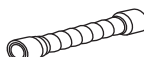
	High-efficiency filter	Wireless remote controller kit	Drain pump
PCFY-MS40VKM-E	PAC-SH88KF-E	PAR-FL32MA, PAR-SL101A-E	PAC-SJ92DM-E
PCFY-MS63VKM-E	PAC-SH89KF-E	PAR-FL32MA, PAR-SL101A-E	PAC-SJ93DM-E
PCFY-MS100, 125VKM-E	PAC-SH90KF-E	PAR-FL32MA, PAR-SL101A-E	PAC-SJ93DM-E

9-2. High efficiency filter

Material: PP honeycomb Gravimetric method: 70%			
Item	PAC-SH88KF-E	PAC-SH89KF-E	PAC-SH90KF-E
Quantity	2 (Small)	1 (Small), 2 (Large)	2 (Large)
Shape			

9-3. Drain pump

If drain water can not flow out the Indoor unit by gravity and gradient, a Drain-pump for draining is needed.
Drain pump PAC-SJ-DM-E can pump water up to 600 mm high from the ceiling.

Item	① Drain lift up mechanism	② Attachment	③ Screws (4×10)	④ VP-20 pipe	⑤ Pipe cover
Quantity	1	1	6	1	1
Shape		 1 Drain lift up mechanism fixture	 For the installation of drain lift up mechanism 1		 For insulation of VP20 pipe4
Item	⑥ Flexible hose	⑦ Fastener	⑧ L-shaped pipe (gas pipe)	⑨ L-shaped pipe (liquid pipe)	⑩ Insulator A
Quantity	1	1	1	1	2
Shape					 6t×220×80 (For internal insulation) For the insulation of L-shaped pipes ⑧ and ⑨ and the refrigerant pipes.
Item	⑪ Insulator B				
Quantity	2				
Shape	 3t×250×120 (For external insulation) For the insulation of L-shaped pipes ⑧ and ⑨ and the refrigerant pipes.				

Detailed installation information should be referred to its Installation Manual.

9-4. Wireless remote controller kit

Wireless remote controller receiver is built-in type.					
Item	① Wireless remote controller	② Remote control holder	③ "AAA" LR3 alkaline batterie	④ 4.1 x 16 wood screw	⑤ Instruction book
Quantity	1	1	2	2	1

Detailed installation information should be referred to its Installation Manual.

PKFY-MS-VLM-E, PKFY-MS-VKM-E

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1. SPECIFICATIONS

Wall mounted

Model			PKFY-MS10VLM-E	PKFY-MS15VLM-E	PKFY-MS20VLM-E
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz
Cooling capacity (Nominal)	*1	kW	1.2	1.7	2.2
	*1	BTU / h	4,100	5,800	7,500
(220V)	Power input		kW	0.02	0.02
	Current input		A	0.20	0.20
Heating capacity (Nominal)	*2	kW	1.4	1.9	2.5
	*2	BTU / h	4,800	6,500	8,500
(220V)	Power input		kW	0.01	0.01
	Current input		A	0.15	0.15
External finish			Plastic, MUNSELL (0.7PB 9.2/0.4)	Plastic, MUNSELL (0.7PB 9.2/0.4)	Plastic, MUNSELL (0.7PB 9.2/0.4)
External dimension HxWxD		mm	299x773x237	299x773x237	299x773x237
		in.	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 30-7/16 x 9-11/32
Net weight		kg(lbs)	11 (25)	11 (25)	11 (25)
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity		Line flow fan x 1	Line flow fan x 1	Line flow fan x 1
	External static press.	Pa	0	0	0
		mmH ₂ O	0	0	0
	Motor Type		DC motor	DC motor	DC motor
	Motor output		0.030	0.030	0.030
	Driving mechanism		Direct-driven	Direct-driven	Direct-driven
	Airflow rate (Low-Mid2-Mid-High)	m ³ / min	3.3-3.5-3.8-4.2	4.0-4.2-4.4-4.7	4.0-4.4-4.9-5.4
		L/s	55-58-63-70	67-70-73-78	67-73-82-90
		cfm	117-124-134-148	141-148-155-166	141-155-173-191
Sound pressure level (measured in anechoic room)		dB <A>	22-24-26-28	22-24-26-28	22-26-29-31
Insulation material			Polyethylene sheet	Polyethylene sheet	Polyethylene sheet
Air filter			PP honeycomb	PP honeycomb	PP honeycomb
Protection device			Fuse	Fuse	Fuse
Refrigerant control device			LEV	LEV	LEV
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI
Diameter of refrigerant pipe	Liquid	mm(in.)	6.35(1/4) Flare	6.35(1/4) Flare	6.35(1/4) Flare
	Gas	mm(in.)	12.70(1/2) Flare	12.70(1/2) Flare	12.70(1/2) Flare
Field drain pipe size		mm(in.)	I.D. 16(5/8)	I.D. 16(5/8)	I.D. 16(5/8)
Drawing	External		-	-	-
	Wiring		-	-	-
	Refrigerant cycle		-	-	-
Standard attachment	Document		Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory		-	-	-
Optional parts	Drain pump		PAC-SK01DM-E	PAC-SK01DM-E	PAC-SK01DM-E
	Plasma Quad Connect		MAC-100FT-E	MAC-100FT-E	MAC-100FT-E
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specification may be subject to change without notice.		

Notes:	*1 Nominal cooling conditions (subject to JIS B8615-1)		*2 Nominal heating conditions (subject to JIS B8615-1)		Unit converter
	Indoor: 27°C D.B./19°C W.B. (81°F D.B./66°F W.B.)		20°C D.B. (68°F D.B.)		BTU/h = kW x 3,412
	Outdoor: 35°C D.B. (95°F D.B.)		7°C D.B./6°C W.B. (45°F D.B./43°F W.B.)		cfm = m³/min x 35.31
	Pipe length: 7.5 m (24-9/16 ft.)		7.5 m (24-9/16 ft.)		lbs = kg/0.4536
	Level difference: 0 m (0 ft.)		0 m (0 ft.)		*The specification data is subject to rounding variation.

1. SPECIFICATIONS

Wall mounted

Model			PKFY-MS25VLM-E	PKFY-MS32VLM-E	PKFY-MS40VLM-E
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz
Cooling capacity (Nominal)	*1	kW	2.8	3.6	4.5
	*1	BTU / h	9,600	12,300	15,400
(220V)	Power input	kW	0.03	0.04	0.04
	Current input	A	0.25	0.35	0.35
Heating capacity (Nominal)	*2	kW	3.2	4.0	5.0
	*2	BTU / h	10,900	13,600	17,100
(220V)	Power input	kW	0.02	0.03	0.03
	Current input	A	0.20	0.30	0.30
External finish			Plastic, MUNSELL (0.7PB 9.2/0.4)	Plastic, MUNSELL (0.7PB 9.2/0.4)	Plastic, MUNSELL (0.7PB 9.2/0.4)
External dimension HxWxD		mm	299x773x237	299x773x237	299x898x237
		in.	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 30-7/16 x 9-11/32	11-25/32 x 35-3/8 x 9-11/32
Net weight		kg(lbs)	11 (25)	11 (25)	13(29)
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity		Line flow fan x 1	Line flow fan x 1	Line flow fan x 1
	External static press.	Pa	0	0	0
		mmH ₂ O	0	0	0
	Motor Type		DC motor	DC motor	DC motor
	Motor output	kW	0.030	0.030	0.030
	Driving mechanism		Direct-driven	Direct-driven	Direct-driven
	Airflow rate (Low-Mid2-Mid-High)	m ³ / min	4.0-4.6-5.4-6.7	4.3-5.4-6.9-8.4	6.3-7.4-8.6-10.0
		L/s	67-77-90-112	72-90-115-140	105-123-143-167
		cfm	141-162-191-237	152-191-244-297	222-261-304-353
Sound pressure level (measured in anechoic room)		dB <A>	22-27-31-35	24-31-37-41	29-34-37-40
Insulation material			Polyethylene sheet	Polyethylene sheet	Polyethylene sheet
Air filter			PP honeycomb	PP honeycomb	PP honeycomb
Protection device			Fuse	Fuse	Fuse
Refrigerant control device			LEV	LEV	LEV
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI
Diameter of refrigerant pipe	Liquid	mm(in.)	6.35(1/4) Flare	6.35(1/4) Flare	6.35(1/4) Flare
	Gas	mm(in.)	12.70(1/2) Flare	12.70(1/2) Flare	12.70(1/2) Flare
Field drain pipe size		mm(in.)	I.D. 16(5/8)	I.D. 16(5/8)	I.D. 16(5/8)
Drawing	External		-	-	-
	Wiring		-	-	-
	Refrigerant cycle		-	-	-
Standard attachment	Document		Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory		-	-	-
Optional parts	Drain pump		PAC-SK01DM-E	PAC-SK01DM-E	PAC-SK01DM-E
	Plasma Quad Connect		MAC-100FT-E	MAC-100FT-E	MAC-100FT-E
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specification may be subject to change without notice.		

Notes:	*1 Nominal cooling conditions (subject to JIS B8615-1)	*2 Nominal heating conditions (subject to JIS B8615-1)	Unit converter
	Indoor: 27°C D.B./19°C W.B. (81°F D.B./66°F W.B.)	20°C D.B. (68°F D.B.)	BTU/h = kW x 3,412
	Outdoor: 35°C D.B. (95°F D.B.)	7°C D.B./6°C W.B. (45°F D.B./43°F W.B.)	cfm = m ³ /min x 35.31
	Pipe length: 7.5 m (24-9/16 ft.) Level difference: 0 m (0 ft.)	7.5 m (24-9/16 ft.) 0 m (0 ft.)	lbs = kg/0.4536
			*The specification data is subject to rounding variation.

1. SPECIFICATIONS

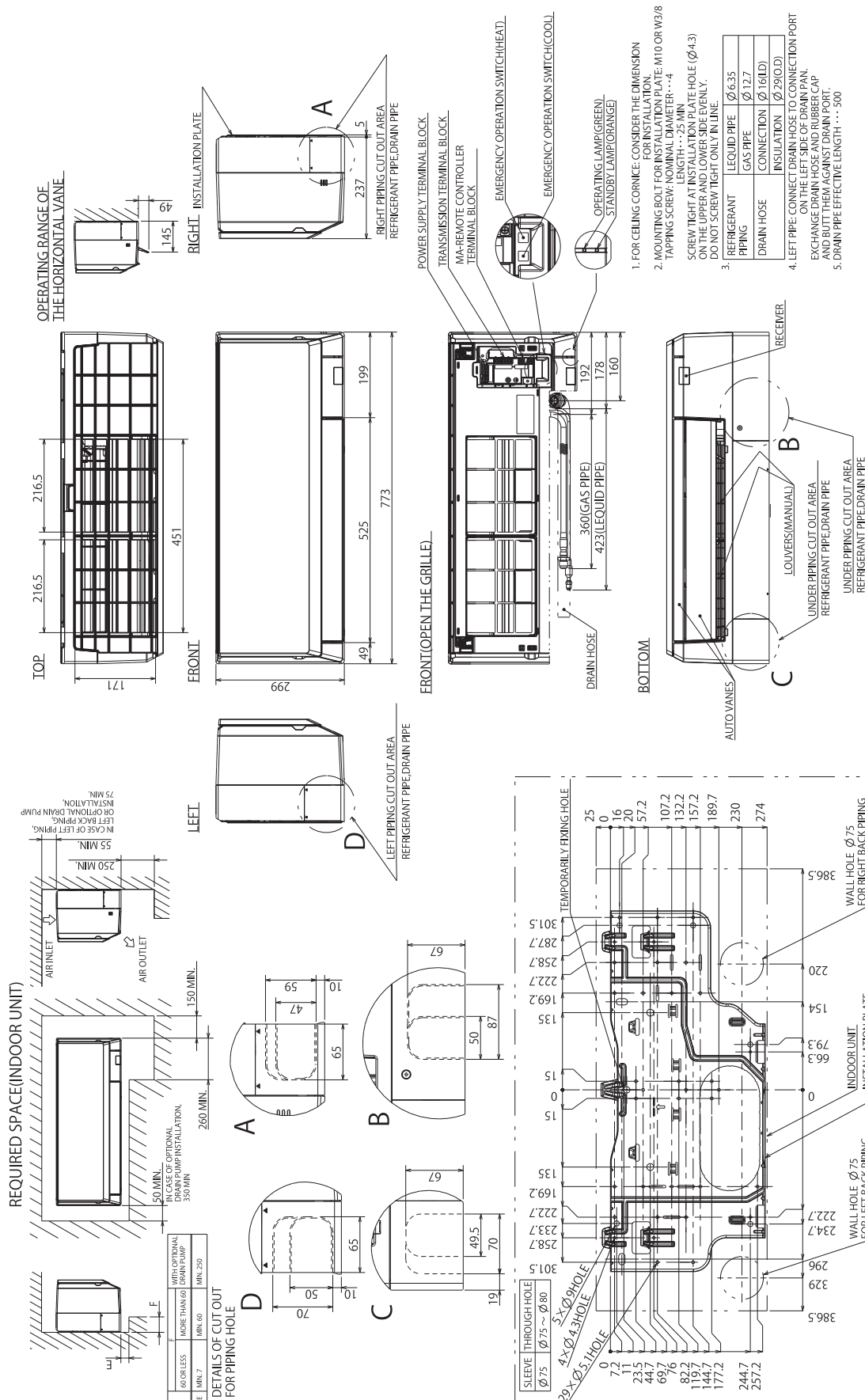
Wall mounted

Model			PKFY-MS50VLM-E	PKFY-MS63VKM-E	PKFY-MS100VKM-E
Power source			1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz	1-phase 220-240V 50Hz, 1-phase 220V 60Hz
Cooling capacity (Nominal)	*1	kW	5.6	7.1	11.2
	*1	BTU / h	19,100	24,200	38,200
(220V)	Power input	kW	0.05	0.05	0.08
	Current input	A	0.45	0.37	0.58
Heating capacity (Nominal)	*2	kW	6.3	8.0	12.5
	*2	BTU / h	21,500	27,300	42,600
(220V)	Power input	kW	0.04	0.04	0.07
	Current input	A	0.40	0.30	0.51
External finish			Plastic, MUNSELL (0.7PB 9.2/0.4)	Plastic, MUNSELL (1.0Y 9.2/0.2)	Plastic, MUNSELL (1.0Y 9.2/0.2)
External dimension HxWxD		mm	299x898x237	365x1170x295	365x1170x295
		in.	11-25/32 x 35-3/8 x 9-11/32	14-3/8 x 46-1/16 x 11-5/8	14-3/8 x 46-1/16 x 11-5/8
Net weight		kg(lbs)	13(29)	21(46)	21(46)
Heat exchanger			Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)	Cross fin (Aluminum fin and copper tube)
FAN	Type x Quantity		Line flow fan x 1	Line flow fan x 1	Line flow fan x 1
	External static press.	Pa	0	0	0
		mmH ₂ O	0	0	0
	Motor Type		DC motor	DC motor	DC motor
	Motor output		0.030	0.069	0.069
	Driving mechanism		Direct-driven	Direct-drive	Direct-drive
	Airflow rate (Low-(Mid2-Mid)-High)	m ³ / min	6.8-8.3-10.2-12.4	16-20	20-26
		L/s	113-138-170-207	267-333	333-433
		cfm	240-293-360-438	565-706	706-918
Sound pressure level (measured in anechoic room)		dB <A>	31-36-41-46	39-42	41-49
Insulation material			Polyethylene sheet	Polyethylene sheet	Polyethylene sheet
Air filter			PP honeycomb	PP honeycomb	PP honeycomb
Protection device			Fuse	Fuse	Fuse
Refrigerant control device			LEV	LEV	LEV
Connectable outdoor unit			R32 CITY MULTI	R32 CITY MULTI	R32 CITY MULTI
Diameter of refrigerant pipe	Liquid	mm(in.)	6.35(1/4) Flare	9.52(3/8) Flare	9.52(3/8) Flare
	Gas	mm(in.)	12.70(1/2) Flare	15.88(5/8) Flare	15.88(5/8) Flare
Field drain pipe size		mm(in.)	I.D. 16(5/8)	I.D. 16(5/8)	I.D. 16(5/8)
Drawing	External		-	-	-
	Wiring		-	-	-
	Refrigerant cycle		-	-	-
Standard attachment	Document		Installation Manual, Instruction Book	Installation Manual, Instruction Book	Installation Manual, Instruction Book
	Accessory		-	-	-
Optional parts	Drain pump		PAC-SK01DM-E	PAC-SK19DM-E	PAC-SK19DM-E
	Plasma Quad Connect		MAC-100FT-E	MAC-100FT-E	MAC-100FT-E
Remarks			* Details on foundation work, duct work, insulation work, electrical wiring, power source switch, and other items shall be referred to the Installation Manual. * Due to continuing improvement, above specification may be subject to change without notice.		

Notes:	*1 Nominal cooling conditions (subject to JIS B8615-1)		*2 Nominal heating conditions (subject to JIS B8615-1)		Unit converter
	Indoor: 27°C D.B./19°C W.B. (81°F D.B./66°F W.B.)		20°C D.B. (68°F D.B.)		BTU/h = kW x 3,412
	Outdoor: 35°C D.B. (95°F D.B.)		7°C D.B./6°C W.B. (45°F D.B./43°F W.B.)		cfm = m ³ /min x 35.31
	Pipe length: 7.5 m (24-9/16 ft.) Level difference: 0 m (0 ft.)		7.5 m (24-9/16 ft.) 0 m (0 ft.)		lbs = kg/0.4536 *The specification data is subject to rounding variation.

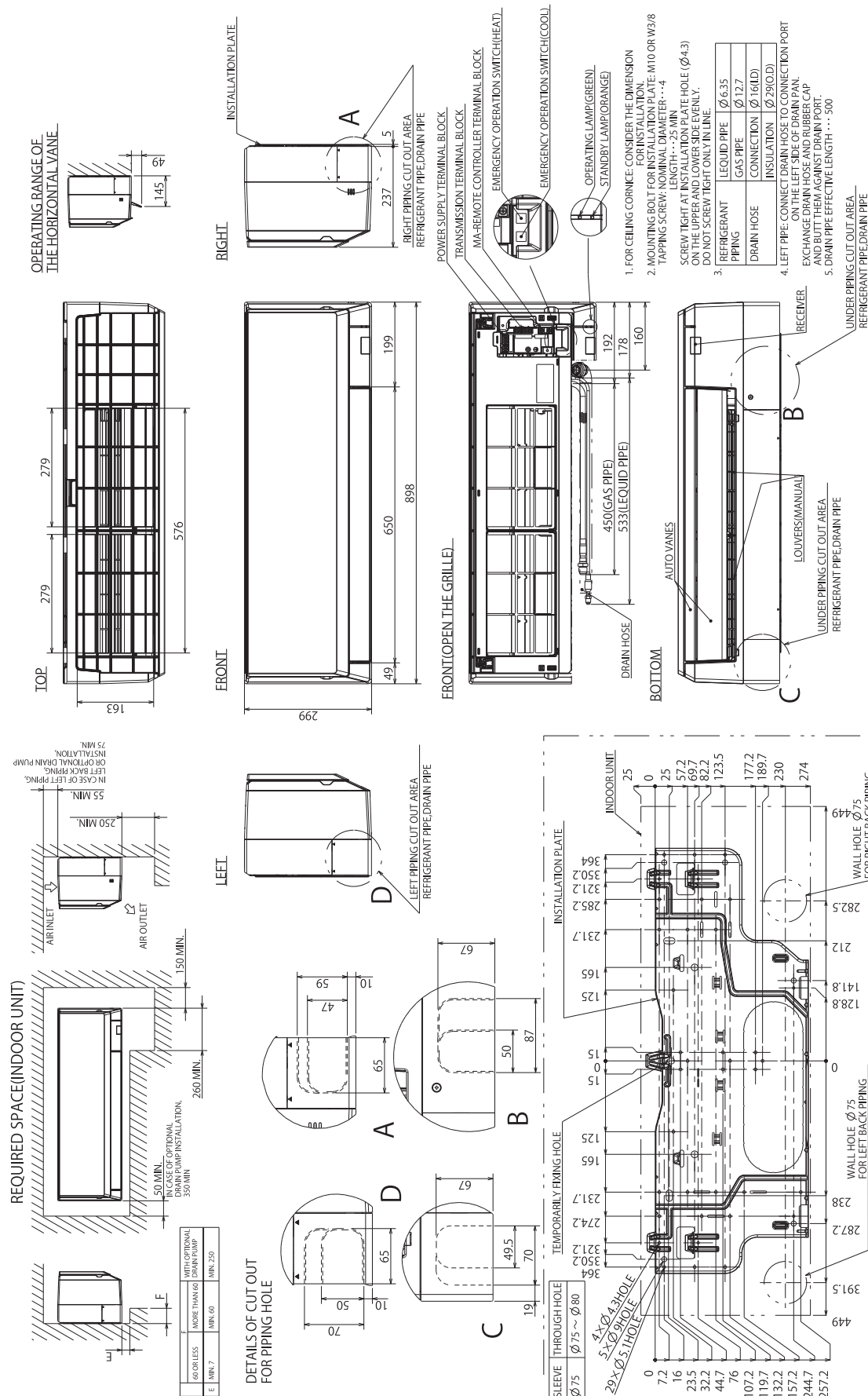
PKFY-MS10, 15, 20, 25, 32VLM-E

Unit: mm



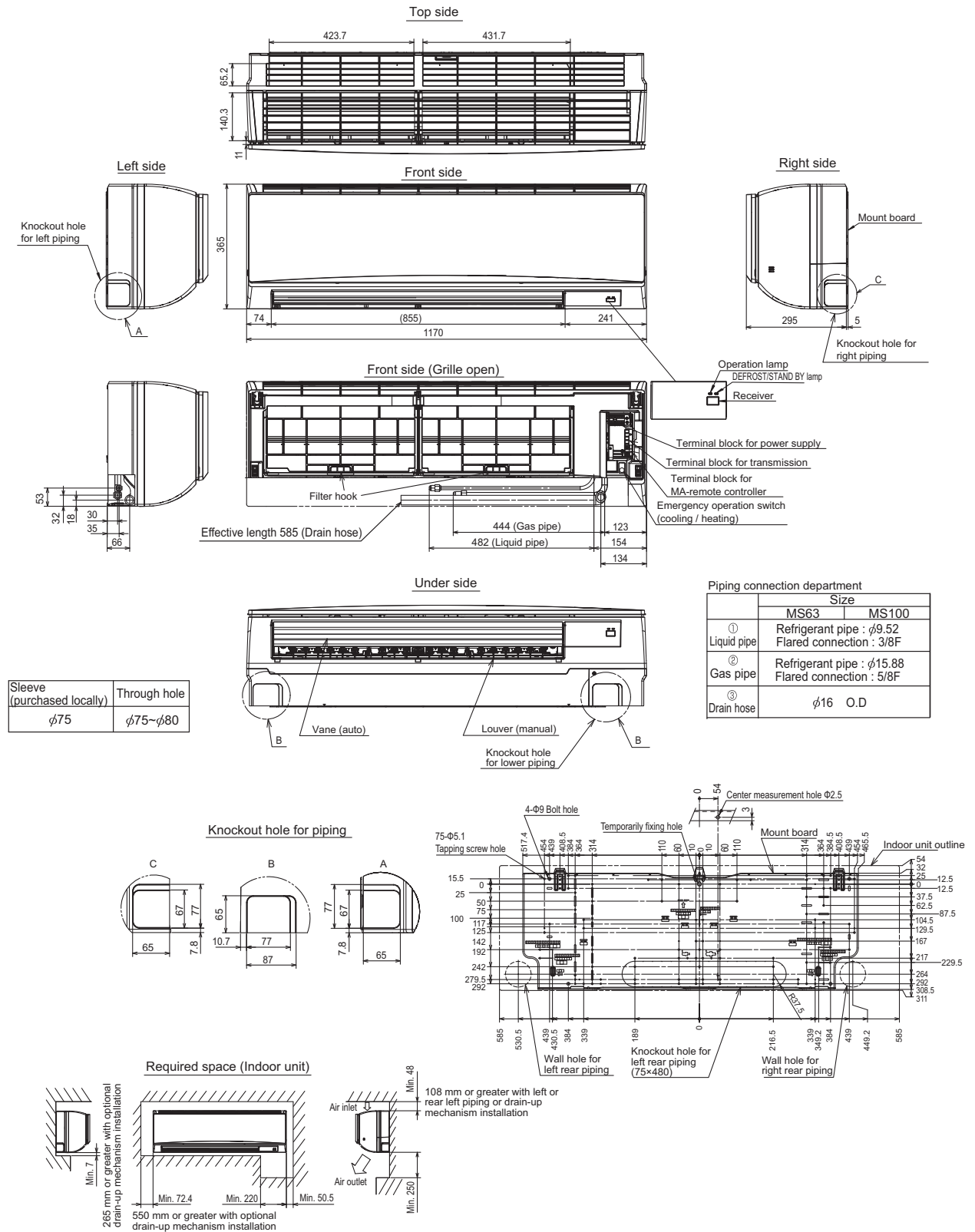
PKFY-MS40, 50VLM-E

Unit: mm

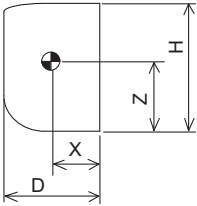
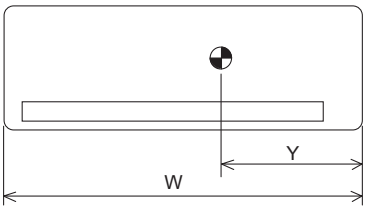


PKFY-MS63, 100VKM-E

Unit : mm



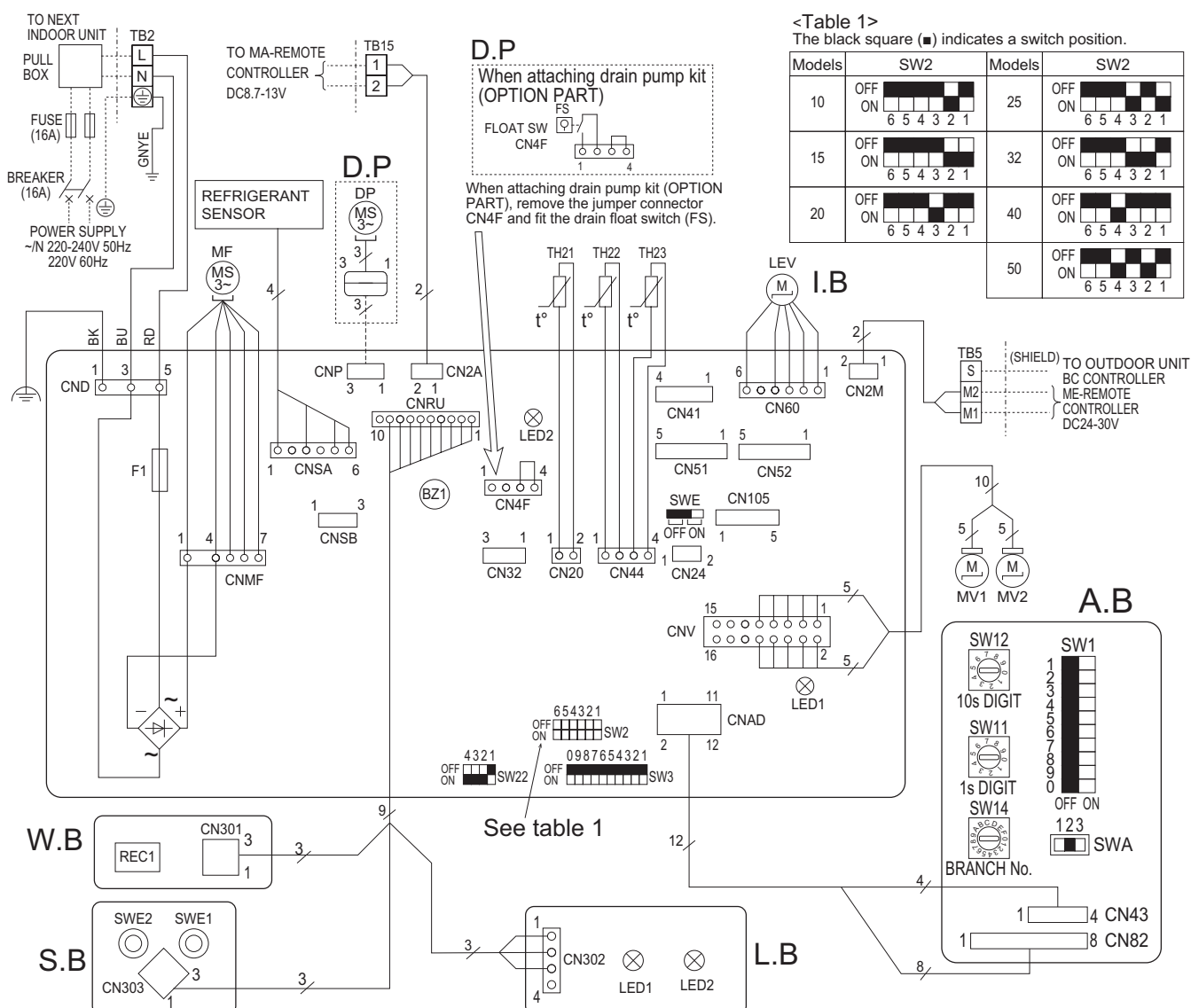
PKFY-MS-VLM-E, VKM-E



(mm)

Model	W	D	H	X	Y	Z
PKFY-MS10VLM-E	773	237	299	130	340	150
PKFY-MS15VLM-E	773	237	299	130	340	150
PKFY-MS20VLM-E	773	237	299	130	340	150
PKFY-MS25VLM-E	773	237	299	130	340	150
PKFY-MS32VLM-E	773	237	299	130	340	150
PKFY-MS40VLM-E	898	237	299	120	390	150
PKFY-MS50VLM-E	898	237	299	120	390	150
PKFY-MS63VKM-E	1170	295	365	190	460	190
PKFY-MS100VKM-E	1170	295	365	190	460	190

PKFY-MS10, 15, 20, 25, 32, 40, 50VLM-E



[LEGEND]

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	TH21	THERMISTOR
CN32	CONNECTOR	TH22	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)
CN51	CENTRALLY CONTROL	TH23	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)
CN52	REMOTE INDICATION		PIPE TEMP. DETECTION / GAS (0°C/15kΩ, 25°C/5.4kΩ)
CN105	IT TERMINAL	A.B	ADDRESS BOARD
BZ1	BUZZER	SWA	SWITCH
F1	FUSE (T3.15A/250V)	SW1	REGION SELECTION
LED1	POWER SUPPLY (I.B)	SW11	MODE SELECTION
LED2	POWER SUPPLY (MA-REMOTE CONTROLLER)	SW12	ADDRESS SETTING 1s DIGIT
SW2	SWITCH	SW14	ADDRESS SETTING 10s DIGIT
SW3	MODE SELECTION	SW14	BRANCH No.
SW22	PAIR NO. SETTING	S.B	SWITCH BOARD
SWE	FAN-DRAIN PUMP (TEST MODE)	SWE1	EMERGENCY OPERATION(HEAT)
LEV	LINEAR EXPANSION VALVE	SWE2	EMERGENCY OPERATION(COOL)
MF	FAN MOTOR	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
MV1	VANE MOTOR (UPPER)	REC1	RECEIVING UNIT
MV2	VANE MOTOR (LOWER)	L.B	LED BOARD
TB2	TERMINAL	LED1	LED(OPERATING INDICATOR: GREEN)
TB5	BLOCK	LED2	LED(STANDBY FOR HEATING : ORANGE)
TB15	MA-REMOTE CONTROLLER	D.P	DRAIN PUMP KIT (OPTIONAL PARTS)
		FS	DRAIN FLOAT SWITCH
		DP	DRAIN PUMP

NOTES:

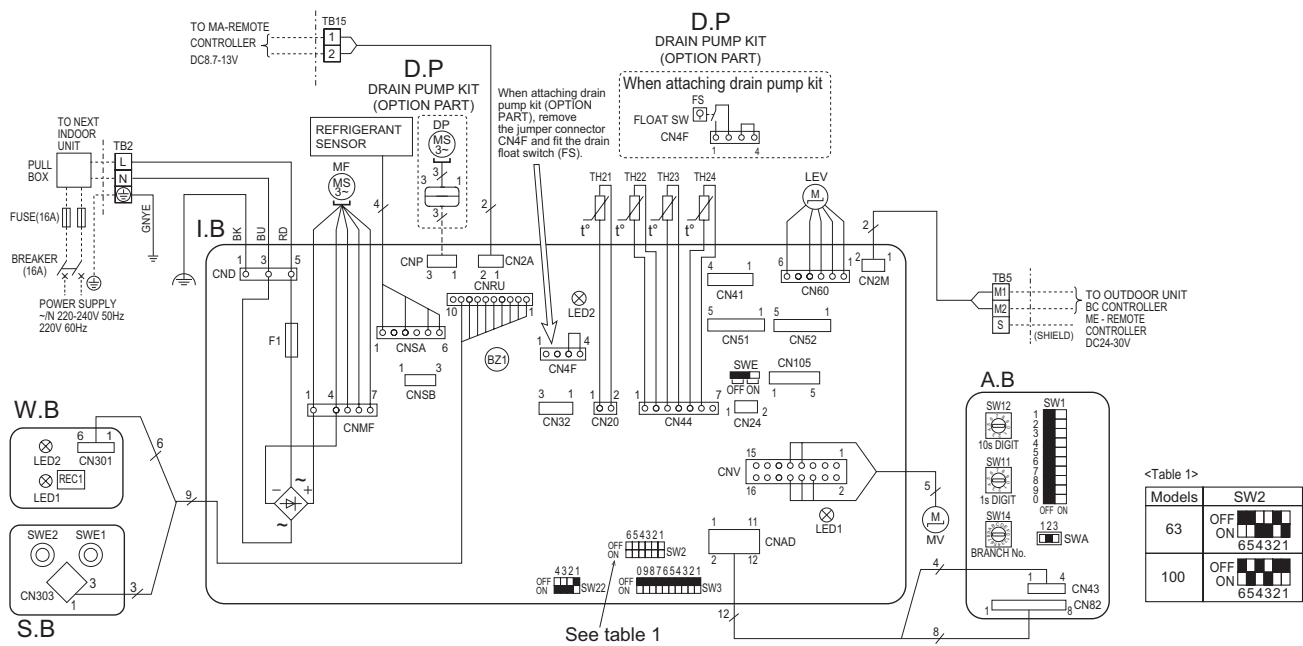
- At servicing for outdoor unit, always follow the wiring diagram of outdoor unit.
- In case of using MA-Remote controller, please connect to TB15. (Remote controller wire is non-polar.)
- In case of using M-NET, please connect to TB5. (Transmission line is non-polar.)
- Symbol [S] of TB5 is the shield wire connection.
- Symbols used in wiring diagram are, : terminal block, : connector.
- The setting of the SW2 dip switches differs in the capacity. For the detail, see table 1.
- The black square (■) in the wiring diagram indicates a switch position.

LED on indoor controller board for service

Symbol	Meaning	Function
LED1	Main power supply	Main power supply (Indoor unit: 220-240V AC) Power on → lamp is lit
LED2	Power supply for MA-Remote controller	Power supply for MA-Remote controller on → lamp is lit

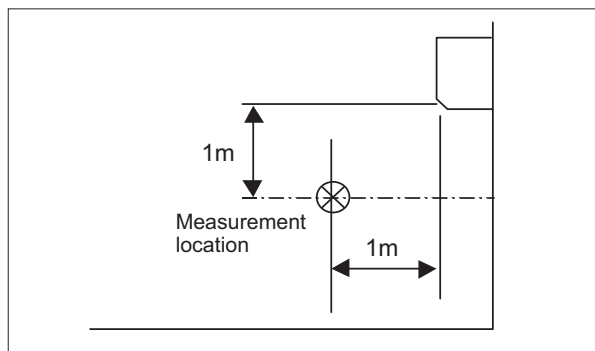
PKFY-MS63, 100VKM-E

SYMBOL	NAME	SYMBOL	NAME
I.B	INDOOR CONTROLLER BOARD	TH23	PIPE TEMP. DETECTION / GAS1 (0°C/15kΩ, 25°C/5.4kΩ)
CN32	CONNECTOR	TH24	PIPE TEMP. DETECTION / GAS2 (0°C/15kΩ, 25°C/5.4kΩ)
CN51	CENTRALLY CONTROL	A.B	ADDRESS BOARD
CN52	REMOTE INDICATION	SWA	SWITCH
CN105	IT TERMINAL	SW1	FAN SPEED SELECTOR
BZ1	BUZZER	SW11	MODE SELECTION
F1	FUSE (T3.15AL 250V)	SW12	ADDRESS SETTING 1s DIGIT
SW2	SWITCH	SW14	ADDRESS SETTING 10s DIGIT
SW3	MODE SELECTION		BRANCH No.
SW22	PAIR NO. SETTING	S.B	SWITCH BOARD
SWE	DRAIN PUMP(TEST MODE)	SWE1	EMERGENCY OPERATION(HEAT)
LEV	LINEAR EXPANSION VALVE	SWE2	EMERGENCY OPERATION(COOL)
MF	FAN MOTOR	W.B	PCB FOR WIRELESS REMOTE CONTROLLER
MV	VANE MOTOR	LED1	LED(OPERATION INDICATOR : GREEN)
TB2	TERMINAL	LED2	LED(PREPARATION FOR HEATING : ORANGE)
TB5	BLOCK	REC1	RECEIVING UNIT
TB15	MA-REMOTE CONTROLLER	D.P	DRAIN PUMP KIT (OPTIONAL PARTS)
TH21	ROOM TEMP. DETECTION (0°C/15kΩ, 25°C/5.4kΩ)	DP	DRAIN PUMP
TH22	PIPE TEMP. DETECTION / LIQUID (0°C/15kΩ, 25°C/5.4kΩ)	FS	DRAIN FLOAT SWITCH



5-1. Sound levels

Wall mounted

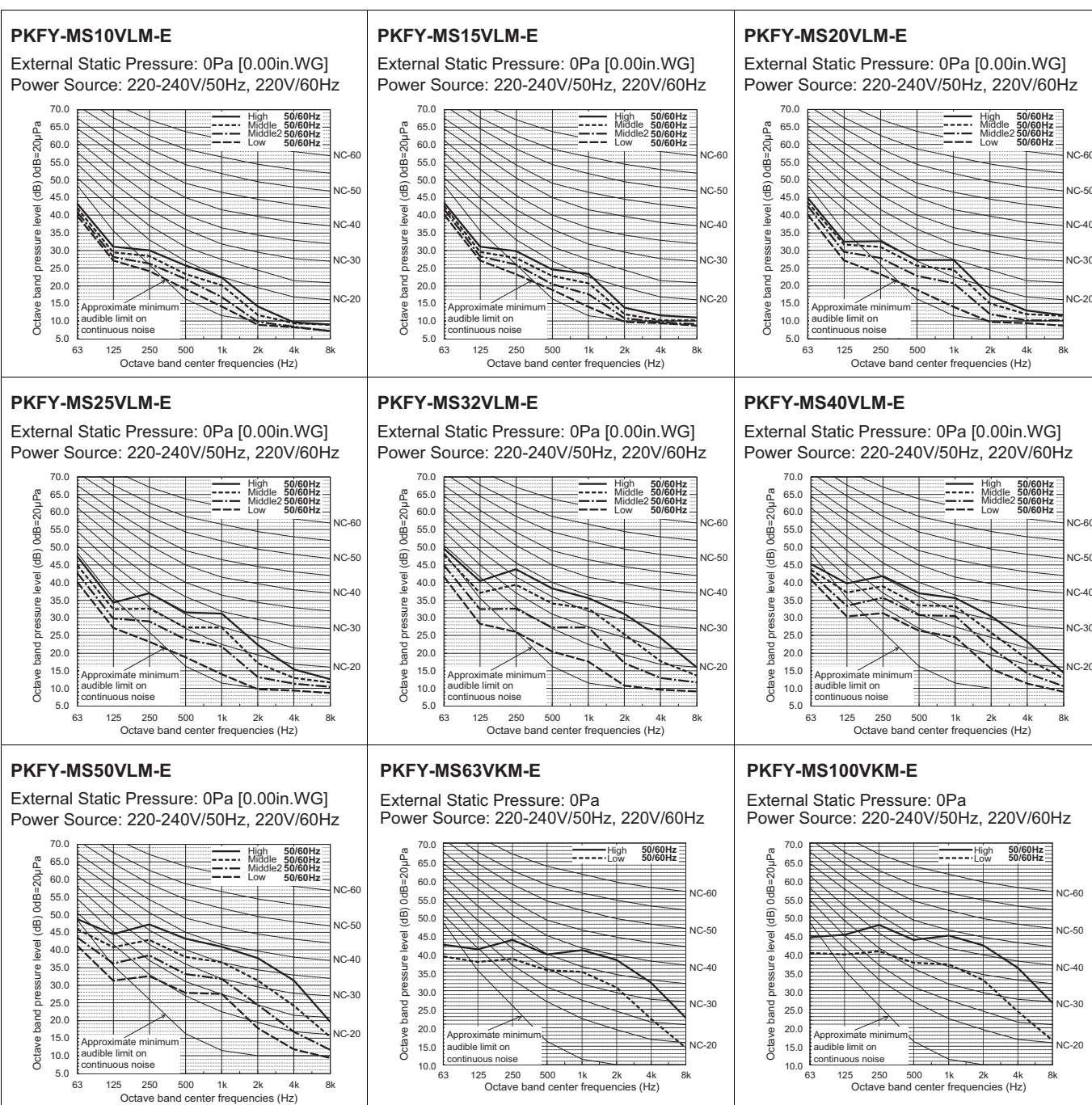


* Measured in anechoic room.

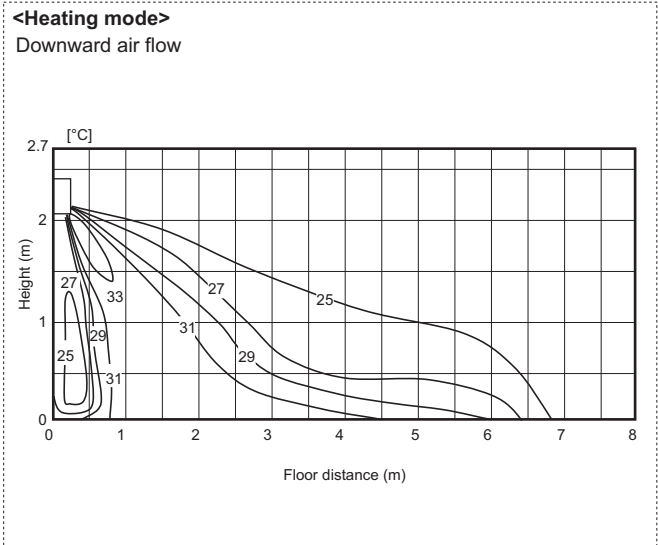
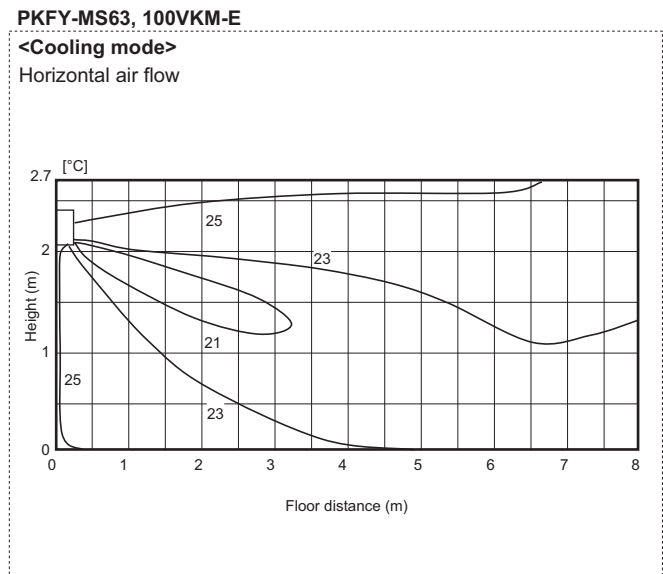
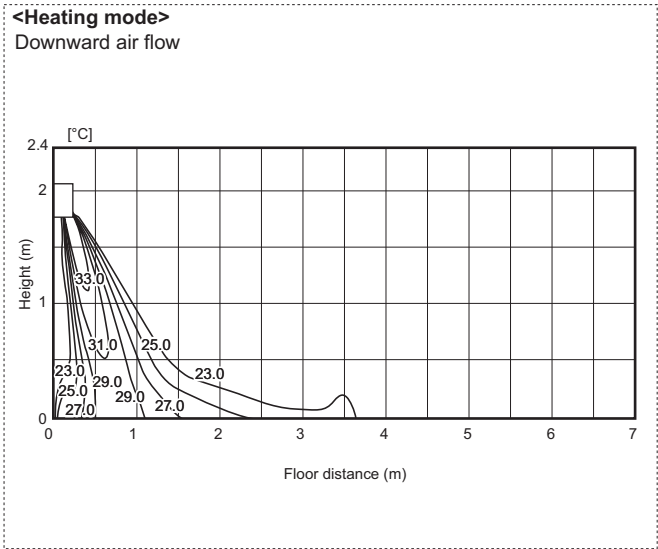
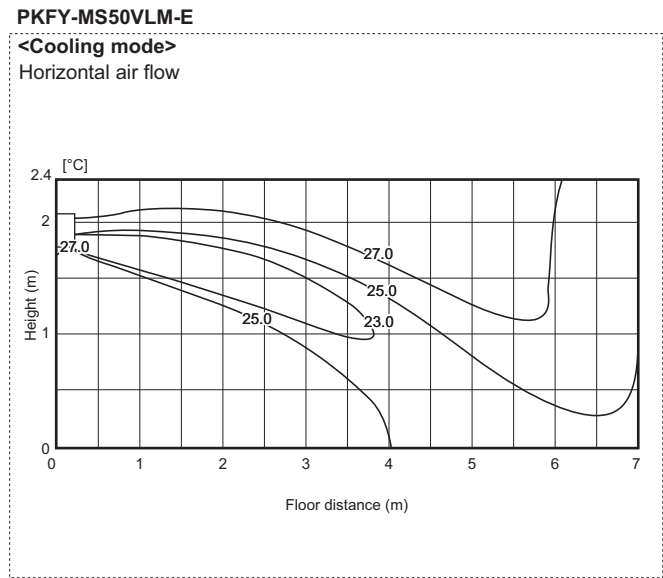
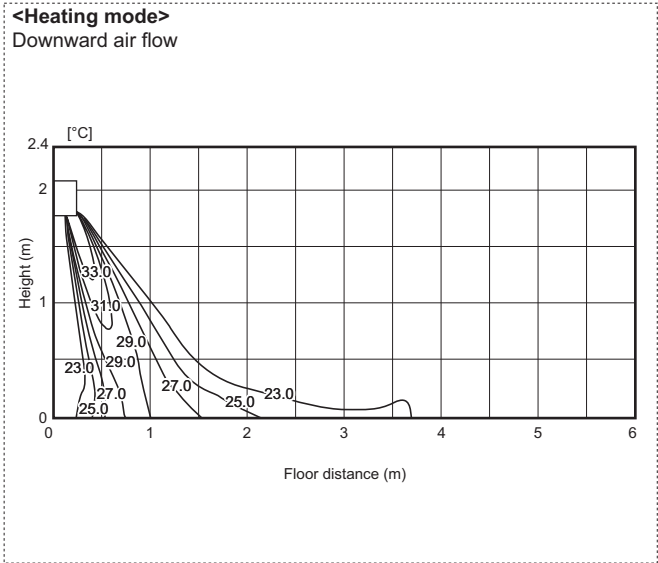
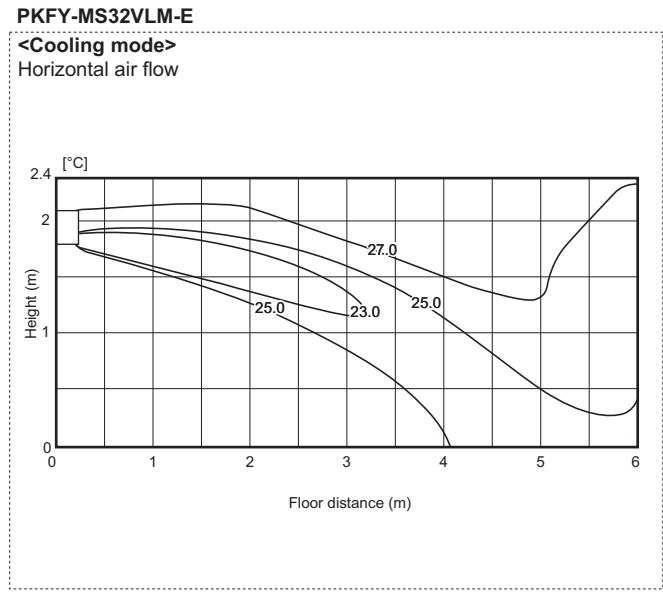
Sound level at anechoic room: Low-(Middle2-Middle)-High

Model	Sound level dB (A)
PKFY-MS10VLM-E	22-24-26-28
PKFY-MS15VLM-E	22-24-26-28
PKFY-MS20VLM-E	22-26-29-31
PKFY-MS25VLM-E	22-27-31-35
PKFY-MS32VLM-E	24-31-37-41
PKFY-MS40VLM-E	29-34-37-40
PKFY-MS50VLM-E	31-36-41-46
PKFY-MS63VKM-E	39-42
PKFY-MS100VKM-E	41-49

5-2. NC curves



6-1. Temperature distributions



Note : These figures show typical temperature distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

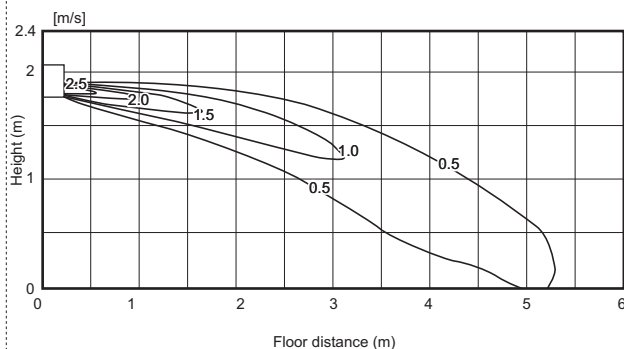
PKFY-MS-VLM-E, VKM-E

6-2. Airflow distributions

PKFY-MS32VLM-E

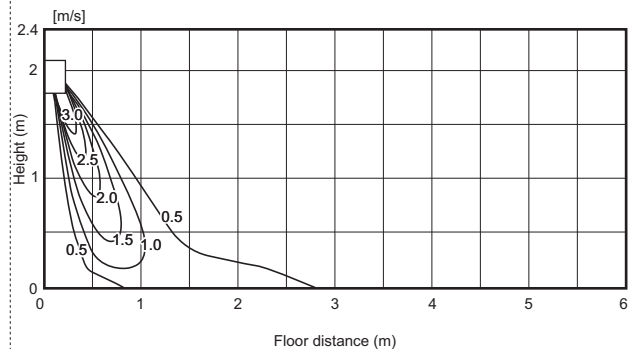
<Cooling mode>

Horizontal air flow



<Heating mode>

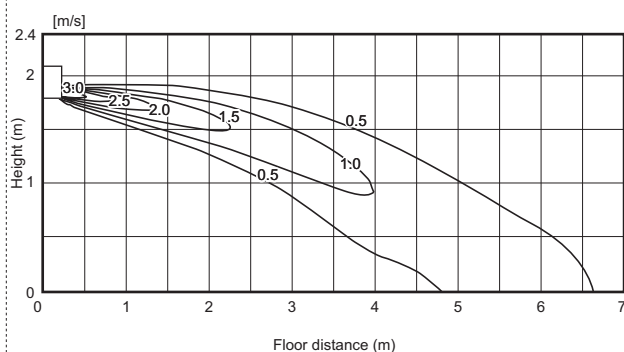
Downward air flow



PKFY-MS50VLM-E

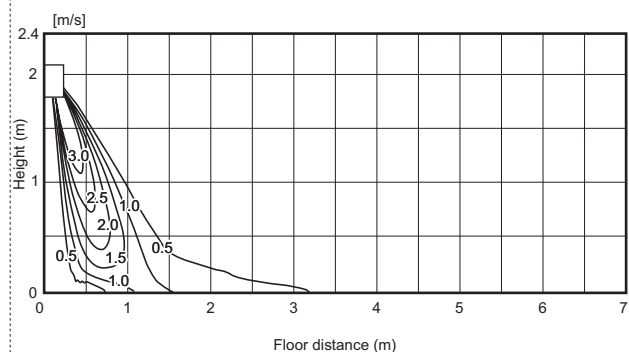
<Cooling mode>

Horizontal air flow



<Heating mode>

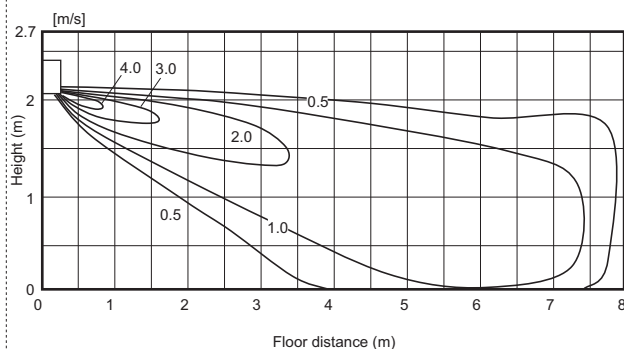
Downward air flow



PKFY-MS63, 100VKM-E

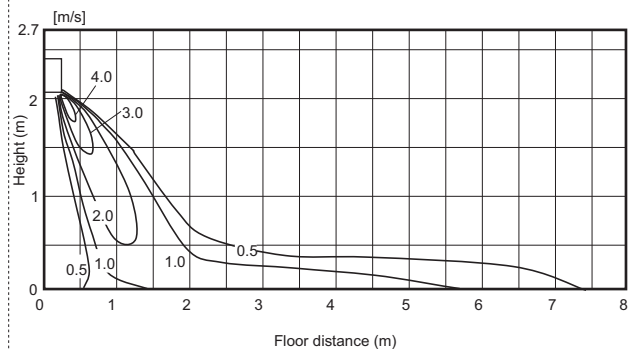
<Fan mode>

Horizontal air flow



<Fan mode>

Downward air flow



Note : These figures show typical airflow distributions in the conditions above. In the actual installation, they may differ from these figures under the influence of air temperature conditions, ceiling height, cooling/heating load, obstacles, etc.

7. ELECTRICAL CHARACTERISTICS

Wall mounted

Symbols: MCA (Max.Circuit Amps =1.25xFLA), FLA (Full Load Amps)
IFM (Indoor Fan Motor), Output (Fan motor rated output)

Model name	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A)	Output (kW)	FLA(A)
PKFY-MS10VLM-E	220-240V/50Hz 220V/60Hz	Max.: 264V Min.: 198V	0.25	0.030	0.20
PKFY-MS15VLM-E			0.25	0.030	0.20
PKFY-MS20VLM-E			0.25	0.030	0.20
PKFY-MS25VLM-E			0.32	0.030	0.25
PKFY-MS32VLM-E			0.44	0.030	0.35
PKFY-MS40VLM-E			0.44	0.030	0.35
PKFY-MS50VLM-E			0.57	0.030	0.45

Model name	Power supply			IFM	
	Volts/Hz	Range +-10%	MCA(A)	Output (kW)	FLA(A)
PKFY-MS63VKM-E	220-240V/50Hz	Max.: 264V	0.36	0.069	0.29
PKFY-MS100VKM-E	220V/60Hz	Min.: 198V	0.63	0.069	0.50

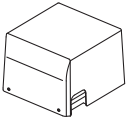
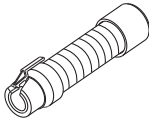
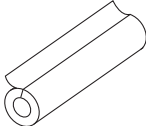
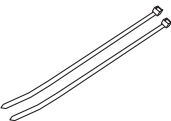
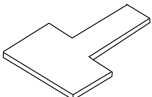
8-1. Optional parts line up for the Indoor unit

	Drain pump	Plasma Quad Connect
PKFY-MS10VLM-E	PAC-SK01DM-E	MAC-100FT-E
PKFY-MS15, 20, 25, 32, 40, 50VLM-E	PAC-SK01DM-E	MAC-100FT-E
PKFY-MS63, 100VKM-E	PAC-SK19DM-E	MAC-100FT-E

8-2. Drain pump

PAC-SK01DM-E

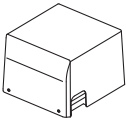
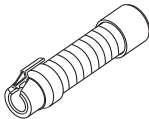
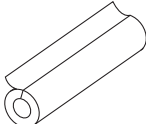
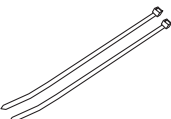
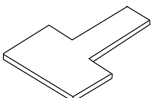
If drain water can not flow out the Indoor unit by gravity and gradient, a Drain-pump for draining is needed.
Drain pump PAC-SK01DM-E can pump water up to 850mm [33-1/2 in.] high from the drain pan.

Item	① Drain pump	② Screw	③ Drain hose	④ Flexible hose cover	⑤ Band
Quantity	1	(M4×16)×1, (M4×35)×6	1	1	2
Shape					
Item	⑥ Paper gauge				
Quantity	1				
Shape					

Detailed installation information should be referred to its Installation Manual.

PAC-SK19DM-E

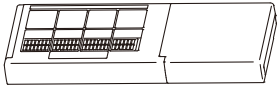
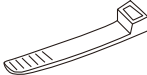
If drain water can not flow out the Indoor unit by gravity and gradient, a Drain-pump for draining is needed.
Drain pump PAC-SK19DM-E can pump water up to 850mm [33-1/2 in.] high from the drain pan.

Item	① Drain pump	② Screw	③ Drain hose	④ Flexible hose cover	⑤ Band
Quantity	1	(M4×16)×1, (M4×35)×6	1	1	2
Shape					
Item	⑥ Paper gauge				
Quantity	1				
Shape					

Detailed installation information should be referred to its Installation Manual.

8-3. Plasma Quad Connect

MAC-100FT-E

Item	Plasma Quad Connect (with connecting cable)	Installation plate	Fixing screw for Plasma Quad Connect and Installation plate 4 × 25 mm
Quantity	1	1	5
Shape			
Item	Spacer Note: The spacer is used as packaging material.	Mounting cord clamp	Cable tie
Quantity	1	1	1
Shape			
Item	Screw for Mounting cord clamp 4 × 16 (Use when joining room air conditioner parts)		
Quantity	1		
Shape			

Detailed installation information should be referred to its Installation Manual.

CITY MULTI

3. CAPACITY TABLES

Capacity tables 3 - 1

Capacity tables

1. [Ceiling concealed (Medium static pressure type)]	3 - 2
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2-1. Cooling capacity with PUMY-SM112-140VKM, YKM	3 - 3
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1-1. Cooling capacity with PUMY-SM112-140VKM, YKM

PEFY-MS-VMA(L)-A

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
20 (2.2)	1.7	1.7	1.8	1.8	2.1	1.9	2.2	2.1	2.3	2.1	2.4	2.1	2.5	2.1
25 (2.8)	2.2	2.0	2.3	2.1	2.6	2.1	2.8	2.3	2.9	2.3	3.1	2.3	3.2	2.2
32 (3.6)	2.8	2.4	3.0	2.5	3.4	2.6	3.6	2.8	3.7	2.7	3.9	2.7	4.1	2.7
40 (4.5)	3.5	3.4	3.7	3.6	4.2	3.7	4.5	4.0	4.6	4.0	4.9	3.9	5.2	3.9
50 (5.6)	4.3	4.3	4.7	4.7	5.3	4.9	5.6	5.3	5.8	5.3	6.1	5.2	6.4	5.1
63 (7.1)	5.5	5.0	5.9	5.3	6.7	5.5	7.1	5.9	7.3	5.9	7.7	5.8	8.2	5.7
71 (8.0)	6.2	6.2	6.7	6.7	7.6	6.9	8.0	7.5	8.2	7.5	8.7	7.4	9.2	7.3
80 (9.0)	7.0	6.7	7.5	7.1	8.5	7.3	9.0	7.9	9.3	7.9	9.8	7.8	10.4	7.6
100 (11.2)	8.7	7.8	9.3	8.3	10.6	8.4	11.2	9.2	11.5	9.1	12.2	9.0	12.9	8.9
125 (14.0)	10.9	8.9	11.7	9.4	13.2	9.7	14.0	10.4	14.4	10.4	15.3	10.2	16.1	10.1
140 (16.0)	12.4	10.5	13.3	11.1	15.1	11.4	16.0	12.3	16.5	12.3	17.4	12.1	18.4	11.9

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

2. [Ceiling cassette (4-way flow type)]

Capacity tables

2-1. Cooling capacity with PUMY-SM112-140VKM, YKM

PLFY-MS-VEE-E

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
20 (2.2)	1.7	1.7	1.8	1.8	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.4
25 (2.8)	2.2	2.2	2.3	2.3	2.6	2.6	2.8	2.8	2.9	2.8	3.1	2.8	3.2	2.7
32 (3.6)	2.8	2.8	3.0	3.0	3.4	3.1	3.6	3.4	3.7	3.3	3.9	3.3	4.1	3.2
40 (4.5)	3.5	3.3	3.7	3.4	4.2	3.5	4.5	3.8	4.6	3.8	4.9	3.8	5.2	3.7
50 (5.6)	4.3	3.8	4.7	4.0	5.3	4.1	5.6	4.4	5.8	4.4	6.1	4.4	6.4	4.3
63 (7.1)	5.5	4.5	5.9	4.7	6.7	4.8	7.1	5.2	7.3	5.2	7.7	5.1	8.2	5.0
80 (9.0)	7.0	5.7	7.5	6.0	8.5	6.2	9.0	6.6	9.3	6.6	9.8	6.5	10.4	6.4
100 (11.2)	8.7	7.0	9.3	7.4	10.6	7.6	11.2	8.2	11.5	8.1	12.2	8.0	12.9	7.9
125 (14.0)	10.9	8.7	11.7	9.2	13.2	9.5	14.0	10.2	14.4	10.1	15.3	10.0	16.1	9.8

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

PLFY-MS-VFM-E

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
15 (1.7)	1.3	1.3	1.4	1.3	1.6	1.4	1.7	1.5	1.8	1.5	1.9	1.5	2.0	1.4
20 (2.2)	1.7	1.5	1.8	1.6	2.1	1.6	2.2	1.7	2.3	1.7	2.4	1.7	2.5	1.7
25 (2.8)	2.2	1.8	2.3	1.9	2.6	2.0	2.8	2.1	2.9	2.1	3.1	2.1	3.2	2.1
32 (3.6)	2.8	2.2	3.0	2.3	3.4	2.4	3.6	2.5	3.7	2.5	3.9	2.5	4.1	2.5
40 (4.5)	3.5	2.7	3.7	2.8	4.2	2.9	4.5	3.1	4.6	3.1	4.9	3.1	5.2	3.0
50 (5.6)	4.3	3.3	4.7	3.5	5.3	3.6	5.6	3.8	5.8	3.8	6.1	3.8	6.4	3.7

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

3-1. Cooling capacity with PUMY-SM112-140VKM, YKM

PCFY-MS-VKM-E

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
40 (4.5)	3.5	2.7	3.7	2.8	4.2	2.9	4.5	3.2	4.6	3.1	4.9	3.1	5.2	3.0
63 (7.1)	5.5	4.2	5.9	4.4	6.7	4.5	7.1	4.9	7.3	4.9	7.7	4.8	8.2	4.7
100 (11.2)	8.7	6.4	9.3	6.8	10.6	7.0	11.2	7.6	11.5	7.5	12.2	7.4	12.9	7.3
125 (14.0)	10.9	8.0	11.7	8.4	13.2	8.7	14.0	9.4	14.4	9.3	15.3	9.2	16.1	9.0

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

4-1. Cooling capacity with PUMY-SM112-140VKM, YKM

PKFY-MS-VLM-E

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
10 (1.2)	0.9	0.8	1.0	0.8	1.1	0.8	1.2	0.9	1.2	0.9	1.3	0.9	1.4	0.9
15 (1.7)	1.3	1.0	1.4	1.1	1.6	1.1	1.7	1.2	1.8	1.2	1.9	1.2	2.0	1.2
20 (2.2)	1.7	1.3	1.8	1.4	2.1	1.4	2.2	1.5	2.3	1.5	2.4	1.5	2.5	1.5
25 (2.8)	2.2	1.6	2.3	1.7	2.6	1.8	2.8	1.9	2.9	1.9	3.1	1.9	3.2	1.9
32 (3.6)	2.8	2.2	3.0	2.3	3.4	2.4	3.6	2.6	3.7	2.5	3.9	2.5	4.1	2.5
40 (4.5)	3.5	2.7	3.7	2.8	4.2	2.9	4.5	3.1	4.6	3.1	4.9	3.1	5.2	3.0
50 (5.6)	4.3	3.3	4.7	3.5	5.3	3.6	5.6	3.9	5.8	3.9	6.1	3.8	6.4	3.8

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

PKFY-MS-VKM-E

CA: Capacity (kW), SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.													
	21.5°C D.B. 15°C W.B.		23°C D.B. 16°C W.B.		25°C D.B. 18°C W.B.		27°C D.B. 19°C W.B.		28°C D.B. 20°C W.B.		30°C D.B. 22°C W.B.		32°C D.B. 24°C W.B.	
	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
63 (7.1)	5.5	4.6	5.9	4.9	6.7	5.0	7.1	5.4	7.3	5.4	7.7	5.3	8.2	5.2
100 (11.2)	8.7	6.7	9.3	7.0	10.6	7.3	11.2	7.8	11.5	7.8	12.2	7.7	12.9	7.5

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

5-1. Heating capacity with PUMY-SM112-140VKM, YKM

All Indoor units

SHC: Sensible Heat Capacity (kW)

Model size (Rated kW)	Indoor air temp.			
	15°C D.B.	20°C D.B.	25°C D.B.	27°C D.B.
	SHC	SHC	SHC	SHC
10 (1.4)	1.7	1.4	1.1	1.0
15 (1.9)	2.3	1.9	1.5	1.4
20 (2.5)	3.0	2.5	2.0	1.8
25 (3.2)	3.8	3.2	2.6	2.3
32 (4.0)	4.8	4.0	3.2	2.9
40 (5.0)	6.0	5.0	4.0	3.7
50 (6.3)	7.5	6.3	5.0	4.6
63 (8.0)	9.5	8.0	6.4	5.8
71 (9.0)	10.7	9.0	7.2	6.6
80 (10.0)	11.9	10.0	8.0	7.3
100 (12.5)	14.9	12.5	10.0	9.1
125 (16.0)	19.1	16.0	12.8	11.7
140 (18.0)	21.5	18.0	14.4	13.2

* The capacity does not depend on the outdoor temperature.

kcal/h = kW x 860, BTU/h = kW x 3,412

CITY MULTI

4. CONTROLLER

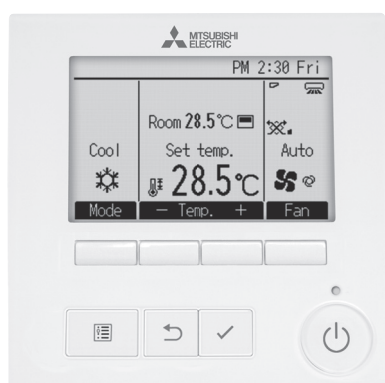
Controller 4 - 1

Controller

1. Local remote controller 4 - 2

1-1. MA remote controller [PAR-41MAAB]..... 4 - 2

1-1. MA remote controller [PAR-41MAAB]

Dual
Set
Point

- Backlit LCD
- Can be set and shown by 0.5°C/1°F.

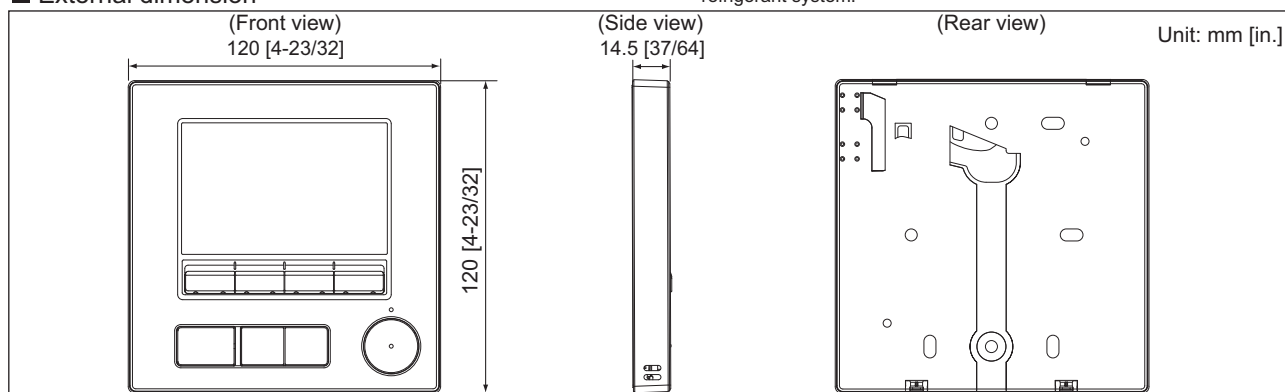
■ Functions

1. Operation/Display

○: Available X: Not available

Item	Description	Setting	Display
ON/OFF	Switches between ON and OFF.	○	○
Operation mode switching	Switches between Cool/Dry/Fan/Auto/Heat.	○	○
Temperature setting	Changes the set temperature. * Set temperature range varies depending on the indoor unit model.	○	○
Fan speed setting	Changes fan speed. * Available fan speeds vary depending on the model.	○	○
Air flow direction setting	Changes airflow direction. * Available airflow directions vary depending on the model.	○	○
Louver setting	Switches between louver ON/OFF.	○	○
Ventilation equipment control	Interlocked setting and interlocked operation setting with City Multi Lossnay units can be performed. The Stop/Low/High settings of the ventilation equipment can be controlled.	○	○
Auto descending panel *1	Raises and lowers the automatic elevating panel.	○	×
Main display mode setting	The Main display can be displayed in two different modes: "Full" and "Basic."	○	○
Main/Supervisor setting	For a system that requires supervisor remote controller, set the remote controller to "Supervisor" from this setting. Supervisor remote controller cannot start up alone. Use it in combination with the main remote controller.	○	○
B&W inversion	The colors of the display can be inverted, turning white background to black and black characters to white.	○	○
Clock *2	Date (year/month/day) and time (hour/minute) can be set. The set time as well as the day of the week will be displayed on the Main display. It is also possible to set not to display the time on the Main display.	○	○
Daylight saving time	The start/end time for daylight saving time can be set. The daylight saving time function will be activated based on the setting contents.	○	×
Clock display	The clock can be displayed in 12-hour format (AM/PM before or after the time) and 24-hour format.	○	○
Room temp. display	The room temperature display can be enabled or disabled.	—	○
Error information	When an error occurs, an error code and the unit address appear. The air-conditioning unit model, serial number, and contact number can be set to appear when an error occurs. (The above information needs to be entered in advance.) * An error code may not appear depending on the error.	—	○
Refrigerant leakage information	When R32 refrigerant leakage is detected, error codes (1521, 1522) will appear, and the ON/OFF LED will blink. An alarm will also sound when a 1521 error is detected.	×	○
Filter information	A filter sign will appear when it is time to clean the filter.	—	○
Remote controller information	The version of the remote controller can be checked.	—	○
Refrigerant system check	Use to check for alarm sound and blinking of the ON/OFF LED. The status of the shut-off valve of the indoor units and refrigerant leak sensor connection will be displayed.	○	○

■ External dimension



2. Schedule and timer setting

○: Available X: Not available

Item	Description	Setting	Display
Timer	ON/OFF timer Turns ON and OFF daily at a set time. • Time can be set in 5-minute increments. • It is also possible to set the ON time only or the OFF time only. Auto-OFF timer Turns off the unit after a certain period of operation. • Operation time can be set to a value from 30 to 240 minutes in 10-minute increments.	○	○
Weekly timer	Weekly ON/OFF times and set temperatures can be set. • Time can be set in 5-minute increments. Up to 8 schedule patterns can be set per day of the week. * Not valid when the ON/OFF timer is set.	○	○
Night setback	The temperature range and the start/stop times can be set.	○	○

3. Restriction settings

○: Available X: Not available

Item	Description	Setting	Display
Allows/disallows local operation	The following operation can be prohibited by applying certain settings on the centralized controller: ON/OFF, operation mode, set temperature, filter sign reset, air direction, fan speed and timer. * While an operation is prohibited, the operation icon lights up (only on the Main display in the "Full" mode).	×	○
Operation lock	The following operations can be prohibited: "Location," "On/Off," "Mode," "Set temp.," "Menu," "Fan," "Louver," or "Vane."	○	○
Temperature range restriction	The room temperature range for each operation mode can be restricted.	○	○
Auto return	The units operate at the preset temperature after a designated period. (Time can be set to a value from 30 to 120 minutes in 10-minute increments.) * Not valid when the temperature setting range is restricted.	○	×
Password	Administrator password (required for schedule setting etc.) and Maintenance password (required for test run and function setting etc.) can be set.	○	×

4. Miscellaneous items

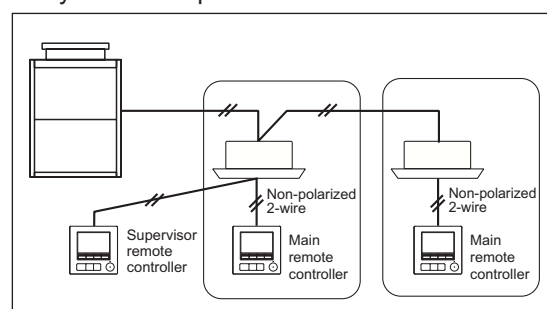
○: Available X: Not available

Item	Description	Setting	Display
Language Selection	Select the display language from the following 14 languages. English, French, Spanish, German, Italian, Dutch, Portuguese, Greek, Russian, Turkish, Czech, Hungarian, Polish, Swedish	○	○
Brightness Contrast	The brightness of the LCD can be adjusted. The contrast of the LCD can be adjusted.	○	○
Manual vane Angle *1	Fixes the vane position for each air outlet.	○	×
Service *1	Contains Test run, Function setting, Request code, and Error history.	○	○
3D i-see Sensor	Settings for 3D i-see Sensor can be made.	○	○

*1 This function is active only for the units that support the function.

*2 The clock is accurate within 45 seconds per month (at the temperature of 25°C [77°F]). The clock is backed up for 3 days.

■ System example



*Only one supervisor remote controller may be connected to each refrigerant system.

⚠ Warning

- Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.
 - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, repair, or at the time of disposal of the unit.
 - It may also be in violation of applicable laws.
 - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- Our air conditioning equipment and heat pumps contain a fluorinated greenhouse gas, R32.

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